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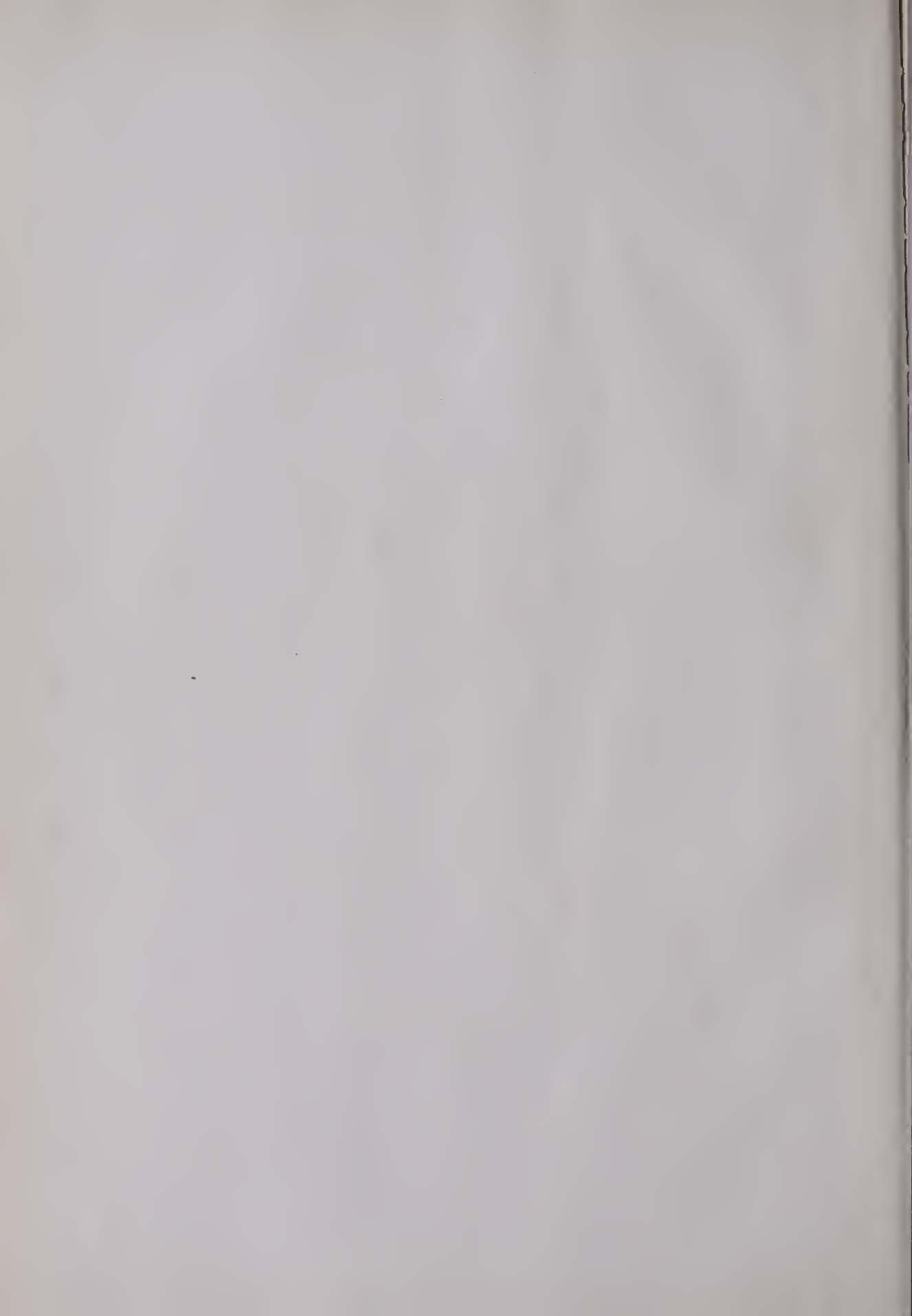


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RECENT TRENDS IN MEDICINE*

WILLIAM S. MIDDLETON, M.D.

MADISON, WIS.

Our generation has witnessed a steady transition from empiricism to rationalism in medicine. Much of this advance has depended upon the application of the results of experimentation to clinical practice. Their objectivity has appealed to the profession; and as an unwarranted result there has developed a distinct tendency to minimize the importance of established clinical methods. We must appreciate that, important and essential though laboratory support may be to a clear diagnosis and prognosis in certain conditions, in no sense can such procedures supersede the bedside observations through the God-given senses or a wide clinical experience in the manifestations of disease.

Bacteriology opened new fields in the understanding of the infectious diseases late in the nineteenth and early in the present century. The cultivation of this virgin soil has advanced apace and certain fundamental principles are still being evolved. For example, Aycock of Harvard maintains that the occurrence of an infectious disease is an accident in the development of natural immunity with advancing years. The attractive concept finds many points of clinical confirmation in the high relative immunity of adults to scarlet fever, diphtheria, poliomyelitis and other diseases.

We are living in the age of prevention that par-

ticularly embraces the infectious diseases, but it should eventually include the degenerative diseases as well. When the Torresdale filtration plant for the purification of the Philadelphia water supply was installed in the early 1900's, occasional physicians were heard to lament the inroads upon their practices through the reduction in the incidence of typhoid fever. Today such expressions would be incomprehensible. Modern medical thought with relation to the infectious diseases is first directed toward prophylaxis; and failing of this ideal, a specific remedy, either chemical or biologic, is sought.

The principle of the passive transfer of immune bodies from a convalescent subject to another for protection or therapy has been widely utilized in poliomyelitis. Park (New York), who has had an extensive experience in this direction, reported equivocal results in some 900 cases of poliomyelitis treated with convalescent serum as compared with a like number of untreated controls. Apparently the incidence of the resultant paralysis was not reduced by the serum therapy. In the discussion that succeeded the presentation of his paper, Park made a significant statement to the effect that, if a child of his were ill with poliomyelitis, he would use convalescent serum, since there was nothing else available.

The recent amplification of clinical experience with tularemia and undulant fever presaged attempts to develop potent biologic agents for their diagnosis and treatment. Foshay (Cincinnati) has apparently answered both of these problems and has afforded antisera for the treatment of these dis-

*From the Department of Medicine, University of Wisconsin.

*Read before a meeting of King County Medical Society, Seattle, Wash., Oct. 15, 1934.

eases. Before these specifics were developed, certain patients with undulant fever responded favorably to nonspecific protein therapy and others to nearsphenamine. Neither of these measures effected improvement consistently, however. It is nonetheless interesting that a bacterial disease, as undulant fever, should apparently have responded to an arsenical.

The streptococcus has long been incriminated as the etiologic agent in rheumatic fever. Swift (New York), Kinsella (St. Louis) and others have advanced experimental and clinical evidence supporting the allergic pathogenesis of its manifestations. The influence of climate and atmospheric conditions upon the bacterial flora has likewise attracted scientific attention from time to time. The recent observations of Coburn are very illuminating. His study was made upon a group of rheumatic subjects, showing acute or subacute evidences of the disease. Cultures of the nose and throat in these individuals in New York City regularly showed the streptococcus hemolyticus. This group was then transported to Porto Rico. Rheumatic fever is unknown at sea level in the tropics. Shortly after their arrival here, the rheumatic manifestations abated coincidentally with a disappearance of the streptococci from the nasopharynx. On their return to New York City sore throats and rheumatic manifestations reappeared and the cultures from the nose and throat were again positive for streptococci.

To those of you interested in the care of the tuberculous, the boon of thoracic surgery is well known. It unquestionably constitutes one of the finest contributions of our period. Measures of immobilization and collapse are available in artificial pneumothorax, phrenicotomy, phrenicectomy, intercostal neurotomy and neurectomy, scaleniotomy, extrapleural and intrapleural pneumolysis and thoracoplasty. Many tuberculous patients, long confined to sanatoria with little hope of arrest by their natural forces, have been rehabilitated by the above surgical methods logically applied. It seems reasonable to anticipate a great growth in this direction and perhaps a much earlier application of the less radical surgical measures to supplement the conservative medical management of pulmonary tuberculosis.

Lobar pneumonia has been a challenge to medicine for generations. The contribution of Felton (Boston) to the simplification of the antipneumococcus sera of types I and II by the precipitation of the potent globulin fraction revived interest in

specific therapy. This concentrated serum was greatly increased in potency and practically freed of the substances leading to adverse reactions. As stated, effective sera have been evolved only for type I and type II pneumococci. They are specific for these organisms, a circumstance which indicates the necessity for typing sputa prior to the administration of sera in pneumonia. To be effective these sera must be given within the first seventy-two hours of the disease. The work of Robertson (Chicago) established the futility of sera or other specific agents directed toward the inflammatory exudate after consolidation is complete. The circulatory changes within the involved area preclude the entrance of any therapeutic material from the blood stream. Doubtless a wider utilization of antipneumococcic sera will attend commercial efforts to reduce the now almost prohibitive cost.

One of the most intriguing phases of the study of pneumonia and pneumococci in general is the work of Avery and his associates at the Rockefeller Institute. Chemical studies have revealed that the capsule of the pneumococcus is largely composed of a carbohydrate. This carbohydrate is type specific for the organism and possesses all of its antigenic properties. Furthermore, divested of this capsule the pneumococcus loses its pathogenicity and only regains the same upon the redevelopment of the capsule. Without this covering the pneumococcus is a ready object for phagocytosis; but, as the clam in its shell is not palatable to the human being, so the bacterium with its capsule is not ingested by the neutrophile. A carbohydrate-splitting enzyme, preferably of bacterial origin, was sought in nature. Finally, an organism with this property was isolated from the cranberry bogs of Northern New Jersey. It is understood that toxic by-effects have been encountered in this material. Of course, such toxic properties will be eliminated before a therapeutic trial can be made and its efficacy tested.

In the patient with lobar pneumonia, the clinical symptoms in the main depend upon one of three circumstances, or combinations of the same, namely, toxemia, anoxemia and circulatory stress. Attention is directed particularly toward anoxemia because of the neglect of its obvious antidote, oxygen. Of course, this situation has not arisen from ignorance on the part of the profession but from the oversight of the simplicity of its administration. The oxygen chamber is unquestionably the ideal medium, denied to a vast majority, however, by its cost and inaccessibility. The nasal catheter method

of administering oxygen, on the other hand, has for its chief recommendation an almost universal availability. It may be used in the home as well as the hospital. Every welding shop and garage has its tank of oxygen which may be commandeered in an emergency.

Barach (New York) has erroneously stated that the highest available atmosphere of oxygen by the intranasal route is 34 volumes per cent. By a careful survey of the pharyngeal atmospheres with the nasal catheters at various levels Waters and his associates (Madison) have found that, if the catheter tip be passed just to a level beyond which the patient swallows the gas or approximately to a point corresponding to the end of the uvula, the oxygen may be raised to 80 or 90 volumes per cent. This high level is rarely required or desirable. Actually in practice, with the delivery of six liters per minute into the nasopharynx, an atmosphere of 50 volumes per cent of oxygen is maintained and this is adequate for all ordinary needs. Within a short period, as evidences of reduced anoxemia under oxygen therapy, dyspnea is controlled, cyanosis disappears, the pulse is slowed, mental rest is improved and at times the temperature falls appreciably.

Leopold and his associates (Philadelphia) recently recalled the suggestion of artificial pneumothorax in the treatment of lobar pneumonia. Supported by experimental evidence of its advantages they have reported some clinical success. The mechanism of its reported action is by no means clear. Certainly none of the roentgen ray studies of the lungs under pneumothorax show the reduction in the zone of consolidation which the proponents of the method claim, nor for that matter would one expect to see a compression of a consolidated lobe by such pressures as will be induced by the artificial pneumothorax. The favorable results must depend upon the altered motility of the involved lung, and a reduction of the circulating toxins attendant upon this immobility. Time will establish the ultimate position of pneumothorax in the treatment of lobar pneumonia.

Syphilis is always an interesting subject and every suggestion of new and improved therapy is welcomed by the profession. The most recent of these developments comes from Tatum at the University of Wisconsin. He reviewed Ehrlich's fundamental studies and among the discarded products leading to the isolation of salvarsan found one that was eliminated from earlier consideration on the basis of its theoretic toxicity. In Tatum's opinion there was nothing in its structural formula to war-

rrent such a condemnation. Accordingly he studied the toxicologic and spirochaeticidal properties of this arsenical, to which he has applied the name, mapharsen. The results were most gratifying. To begin with, its toxicity is extremely low and without preparation it may be injected rapidly into a vein. Initial lesions have been sterilized, i.e., rendered spirochaeta-free upon dark field study of the secretions within eighteen hours. There has been no unusual virtue in the treatment of the late visceral manifestations of syphilis.

The study of the gastrointestinal tract begins logically with the tongue. An English colloquialism states "raw red tongue, raw red gut." The condition of the tongue frequently mirrors the state of the gastrointestinal tract. Our personal interest in the subject of the tongue arose in the study of the glossitis of pernicious anemia. To afford permanent records of the changes in this structure under the influence of liver therapy, tongue prints were made upon smoked paper and the same were dipped into shellac for preservation. The experimental search for a causative background for atrophic glossitis fixed the responsibility upon a vitamin B deficiency, actual or conditioned by absorption and assimilation. Clinical studies have confirmed this position.

In one of the most fascinating studies of recent years Cushing (Boston) postulated the existence of a trophic center for the stomach and duodenum in the interbrain. He supported his position by the relation of a series of coincident lesions of this region of the brain with ulceration of the stomach, duodenum or lower esophagus. Singularly within a year of the publication of Cushing's work, six cases of a similar order occurred in the Wisconsin General Hospital. In most instances the gastric ulceration was a late event, but in each case there was evidence of cellular reaction in the margins of the same. Of course, it may not be concluded from such evidences that the pathogenesis of peptic ulcer stands revealed. It is sufficient to add that the solution appears closer with one added factor assigned. Indeed, the clinician has long maintained the existence of an ulcer type of human constitution after Draper (New York), and certain nervous features are outstanding in this group.

General dissatisfaction in the results of ulcer therapy is voiced by the profession. If further evidence for this statement were required, one need only review the many forms of ulcer management now in vogue. The several antiacid-small feeding regimens have shortcomings admitted by their most enthusiastic proponents. Mucin therapy fell short of its

full promise, when it was found necessary to institute the frequent small feedings to insure maximal results. The troublesome distress or sense of fullness that attends its use may be controlled in most instances by full doses of belladonna. Ventriculin, suggested by Isaacs (Ann Arbor) in the treatment of peptic ulcer, has been somewhat more successful in our hands than mucin. Trippe (Asbury Park) has advised the oral use of metaphen (1-500) in this condition and the results are encouraging. Aolan, hemoprotein and other sources of foreign protein have been utilized with varying success in peptic ulcer on the thesis of a desensitization and of a protective increase in the gastric mucin. Apparently relatively early cases respond brilliantly, but the results have been inconstant in the long standing ones.

The recent epidemic of amebic dysentery that was traced to Chicago served to confirm the predictions of students of the subject who had long anticipated a wide dispersion of the disease through this country. Carbarsone, vioform and other amebicides have been widely utilized, but in the judgment of many clinicians the alternative of the older emetin with one of the newer preparations, as carbarsone and the like, is the most effective therapy.

The oral administration of metaphen (1-500) has been recommended by Trippe in the treatment of ulcerative colitis. In three of five cases in the Wisconsin General Hospital the results have been entirely satisfactory. In each instance a complete remission in the diarrhea with healing of the ulceration to sigmoidoscopy was effected. The series is entirely too small to warrant any conclusion.

Certain developments in the field of cardiovascular therapy are worthy of comment. On the basis of animal experimentation Harrison and his associates (Nashville) contended that digitalis decreased the minute volume output of the heart and offered the unphysiologic explanation of a restraint of the more powerful ventricle to bring it into pace with the weaker chamber for its favorable action in decompensation. Cohn and his fellow workers (New York) clarified this anomalous situation. They found that digitalis always decreased the size of the heart. Obviously, if the heart were small, the further reduction in its size under digitalis would decrease the minute volume output of blood. Accordingly digitalis is contraindicated if the heart is below normal size. Conversely, the reduction in the size of the dilated heart in congestive failure will render its contractions more effective and the minute volume output will be increased.

Theobromine derivatives have been used for some

time for their action in improving the coronary flow. Smith and his associates (Iowa City) report illuminating experimental results in this relation. Ligation of the descendens branch of the left coronary artery in control animals led to infarction of the myocardium of a certain degree. If theophylline were administered before or immediately succeeding the ligation of a coronary artery, the area of myocardial infarction and scarring was markedly reduced over the controls. The clinical implication is clear. Theobromine or its derivatives should be administered early and continuously in threatened or actual coronary occlusion. Another contribution from the same source has been the revival and insistence upon high available carbohydrates in the diet of patients with heart failure, supplemented if necessary by the parenteral administration of glucose.

From Boston have come the reports of Levine, Blumgart and others upon the virtues of total thyroidectomy in anginal and congestive heart failure. The procedure is quite radical and it should be carefully scrutinized before it is generally accepted. Obviously a second pathologic process is superimposed upon the basic circulatory situation. The danger of injury to the parathyroid bodies upon total thyroidectomy is obvious and the recent report of Blumgart and his fellows on this detail is illuminating. In seventy cases subjected to this operation, twelve showed evidences of hypoparathyroidism. Only two of this group remained permanently deficient in this direction. Time will establish the position of total thyroidectomy in decompensation. It is by no means the procedure of first or early choice.

One of the interesting developments in the clinical management of nephritis relates to the changing viewpoint regarding the dietary protein. Until recent years the prescribed low protein diets contributed conspicuously to the anemia and the edema of nephritis. It was not appreciated that the body is kept in nitrogen balance by an adequate protein intake. Two-thirds to $\frac{3}{4}$ of a gram of protein per kilogram of body weight is required to maintain this balance. If a restricted protein diet be given over any period of time, nature exacts its toll from the body proteins, i. e., "robs Peter to pay Paul." There is no evidence that the end-products of the metabolism of endogenous proteins are less irritant to the kidney than those from exogenous sources. Although McCann (Rochester, N. Y.), McLester (Birmingham) and others have established the value of excessively high protein diets, especially when the albuminuria is marked, it seems reason-

able to strike a safe middleground in the matter. Accordingly, maintenance diets should be arranged for nephritics to afford $\frac{2}{3}$ to $\frac{3}{4}$ of a gram of protein per kilogram plus the total albumin lost in the urine.

Great strides have been made in the knowledge of hematopoiesis in the past eight years, since the application of Whipple's observations (Rochester, New York) on the value of liver in the regeneration of hemoglobin in standard anemia animals to the treatment of pernicious anemia by Minot and Murphy (Boston). An amazing stimulus to the study of blood dyscrasias ensued and so rapid has been the growth that it is difficult to assess relative values. The work of Peabody (Boston) established the mechanism of action of liver as a maturing agent, changing the megaloblastic marrow to a normoblastic type. Castle's studies (Boston) have been fundamental. Appreciating the constancy of achlorhydria in pernicious anemia, he evolved a series of logical experiments that reduced the situation to the necessity for an interaction between an intrinsic factor from the stomach and an extrinsic factor from the dietary protein for the elaboration of a maturing substance essential to erythropoiesis. This end-product is stored in the liver, kidney and brain.

A simplification of the classification of the anemias seems justifiable on therapeutic grounds. Most anemias lend themselves to the simple differentiation, hyperchromic and hypochromic. The former is attended by a high color and volume index and macrocytosis. It is seen in pernicious anemia, certain anemias of pregnancy, anemia of dibothriocephalus infestation and the like. The marrow is megaloblastic and the condition responds to liver therapy or its substitutes. A word of caution is sounded against too great standardization of this treatment. Insofar as the dosage of the effective substance is concerned, in the last analysis it is that amount required to raise the blood to its normal level and to maintain this advantage. Hypochromic anemia is marked by a low color and volume index and microcytosis. It is noted in chronic blood loss, achlorhydric anemia and many other conditions. Iron is very useful in its treatment. Minot (Boston), Mettier (San Francisco) and others are responsible for the recommended daily dosage of 4 to 6 grams of the saccharated ferrous carbonate. An acid medium, liver and liver extract enhance the action (or absorption and assimilation) of iron.

Morris and his coworkers (Cincinnati) found

marked reticulocyte responses upon the intramuscular injection of a highly concentrated gastric juice. They postulated the existence of a hormone which they termed addisin. This material is not commercially available, but one of its interesting outgrowths has been the suggestion of an increase of addisin production in polycythemia. Morris reported a marked decline in the total erythrocyte count in a patient with polycythemia vera under treatment for a gastric complaint by repeated lavage. This suggestion was followed at the Wisconsin General Hospital, where a patient with erythremia showed an early response to frequent lavage, but a continuance of this procedure was attended by a resumption of the previously high erythrocyte count. If further study should establish Morris' contention, partial gastrectomy would come to be the logical treatment of erythremia.

The growth in the knowledge of leukopoiesis has not kept pace with that in erythropoiesis. One noteworthy detail has been the recent revival of the use of Fowler's solution in the therapy of chronic myelocytic leukemia by Forkner and Scott (Boston). Large doses, up to 15 minims three times a day, are recommended. The special virtue of this measure lies in the deferment of roentgen therapy. The limitations of the latter treatment are such that only a certain amount of roentgen ray is available to a given patient. Any effective measure that will defer the roentgen therapy should prove a useful adjunct.

In depression of the leukogenetic function certain new clinical facts have been derived. Türk first recognized the condition in septic states as a reflection of poor resistance. Growing interest followed the short reports of Schultz (1922) of a condition which he termed agranulocytic angina. From the standpoint of pathogenesis this designation clearly puts the cart before the horse. It is now recognized that necrosis in the mucous membranes of the mouth, vagina and rectum occur as an effect rather than the cause of neutropenia. Unquestionably many factors contribute to this primary depression of leucopoiesis. A recent contribution of great significance by Madison and Squier (Milwaukee) gives an allergic responsibility to amidopyrine in susceptible individuals. This discovery should not lead to the abandonment of a useful drug but to close scrutiny for adverse effects when it is being used. In the treatment of neutropenia of all types a search for possible toxic, infectious or allergic causes is in order. Beyond this and in its support pentnucleotide has an established value. Perhaps

liver and its extracts may play a further supporting role. It is especially important to maintain the pentnucleotide for a sufficient period to avoid relapses and to follow the leukocytes persistently to anticipate such declines. Whether it be dependent upon complete failure of the leukogenetic centers or a tolerance to pentnucleotide, the ultimate lack of response of the neutropenia to this agent after a series of relapses is notorious.

The field of endocrinology is rapidly expanding. A more wholesome growth has marked recent years. If only one phase of the subject were to be touched, hours could be spent profitably in a consideration of the hypophyseal-gonadal relationship. This is but one of the many functions of this small organ of internal secretion. To touch upon a single further detail of this complex subject, Houssay has found that after removal of the anterior lobe of the hypophysis, pancreatectomy is not attended by hyperglycemia and glycosuria. Utilizing the Horsley-Clarke stereotaxic instrument which permits of accurate localization, electrical stimulation and destruction Ranson and his associates (Chicago) have reproduced these results upon inducing bilateral lesions in the hypothalamus.

In Greek mythology one encounters Procrustes, a robber, who maintained a retreat on a mountain side to which he invited wayfarers. Two beds were provided for their reception. A short one was offered to the tall guests and their legs were amputated to make them fit. For the short guests there was a long bed to which they were stretched. If I have appeared as a medical Procrustes, I know you will forgive me.

GLAUCOMA

SOME PRACTICAL CONSIDERATIONS*

ANDREW J. BROWNING, M.D.

PORTLAND, ORE.

In appearing before you and presenting some salient facts concerning a subject which has not received sufficient attention from a practical standpoint, I make no apologies in offering something that is not new. I feel that the time so devoted is fully justified, inasmuch as glaucoma in its varied manifestations is not better known or appreciated among the rank and file of the profession. It is a matter of sufficient interest and seriousness as to state that from a certain class of patients there is figuratively sounded an urgent cry of S.O.S., save our sight.

I assume that many of the recorded cases of blindness among the outstanding characters in history were instances of the ravages of the disease under discussion. In those days scientific knowledge had not advanced sufficiently to determine the exact nature of the ailment, but in these enlightened days, when much is written of the diagnostic possibilities of glaucoma, we should reproach ourselves in not utilizing every means at our disposal in taking advantage of what the alert investigators and clinical reporters have presented for our benefit as aids to diagnosis and treatment of this insidious, disastrous disease.

When the family physician and refractionist assume the responsibility of conserving the patient's sight, they should be made aware of the fairly prevalent existence of glaucoma, based on the fact that it is estimated that 30 to 40 per cent of blindness occurring after middle life is the result directly or indirectly of some form of the disease, the non-inflammatory type or glaucoma simplex causing the major portion. It is a responsibility which cannot readily be shirked. It has been estimated that in patients over forty years of age presenting themselves for eye examinations six per cent are suffering from some form of glaucoma, and of all eye patients about one per cent are estimated to be victims of the disorder. Inasmuch as there is a woful wastage of eye sight and eyes from unrecognized glaucoma, particularly of the chronic simple type, we confidently venture the assertion that a greater familiarity with this subject will afford a distinct opportunity to render a splendid service to those entrusted to our care who are disposed to this disease.

Let us ask ourselves in the first place, what is glaucoma? It should be a matter of common knowledge that it is a disease of the eyes, usually characterized by increased intraocular pressure, based on certain fundamental abnormal changes in the ocular structure, and accompanied by certain fairly constant signs and symptoms, of which the patients are usually aware and conscious, but the meaning of which is all too foreign to them. These symptoms group themselves together, and seem to conspire with one dastard object in view, namely, the gradual loss of vision, first peripheral and then central. The danger to the central vision is not evident until the latter stages, which makes the condition one of insidiously grave significance. Hence we recognize how essential it is to make an early diagnosis, to the end that appropriate treatment may be instituted, thereby obviating what might otherwise be an ocular catastrophe.

* Read before Sixtieth Annual Meeting Oregon State Medical Society, Corvallis, Ore., Sept. 27-29, 1934.

Suppose we classify the commoner types of glaucoma. The usual forms occur under the heading of noncompensating acute and chronic congestive glaucoma, and the compensating variety, known as chronic simple glaucoma. We will dismiss discussion of the noncompensating type merely by pointing out the fact that it is quite distinctive in the nature of its symptoms. The patient and the physician are definitely committed to the proposition that the eye is the actual seat of the trouble because of the inflammatory perspective, and also by reason of the fact that the symptoms are so severe as to materially impair the central vision, the accompanying pain forcing the patient to seek medical aid.

The diagnosis is fairly obvious, although frequently overlooked or mistaken. There is one particular danger in diagnosis that should be mentioned, and that is, the possible confusion with an acute iritis. This is not the time, nor need it be necessary to outline the features in the differential diagnosis of these two conditions. Suffice it to say that we endeavor to impress upon our students in the department of ophthalmology of the medical school this very important matter, and trust that we are remunerated by a fair degree of success in that direction.

It is to that great group of cases coming under the head of compensated glaucoma that I wish to devote your attention at this moment, in bringing before you some facts of great practical importance, to enable you to determine the potential or actual existence of such an insidious ocular disorder.

Please permit me to present for your consideration a few illustrative actual cases which have recently come under our observation, merely setting forth the essential features of such ocular disasters as to make us pause and ponder.

Case 1. Mrs. A. M., aged 73. While in the hospital convalescing from a major abdominal operation, she became alarmed over the rapid diminution of vision to practically nil in both eyes. Apparently she was not aware of the fact that undoubtedly the right eye had been blind for some time, as disclosed by the existence of a well-marked optic atrophy, typically of glaucomatous origin.

In relating the fact of such a grave disability, involving the function of so precious an organ as the eye, the attending surgeon, one of highest repute as a general surgeon, somewhat indifferently dismissed the subject by stating that the ocular disturbance was undoubtedly incidental to senility (almost unbelievable). Certainly it was a statement that the patient and her family were unwilling to accept, and when brought under our observation the facts revealed a hopelessly blind right eye, and a vision of finger counting at three feet in the left eye. There was an extreme hardness in both eyeballs, and all the earmarks of a subacute attack superimposed on a chronic simple glaucoma.

Energetic treatment with a powerful miotic produced a marked improvement in vision, and a sufficient subsidence

of the pressing symptoms as to warrant an immediate surgical procedure. Suffice it to say, that an adequate trephination of both eyeballs produced normal intraocular pressure, and an amazing restoration of vision in the left eye to practical normality. As before stated, the right eye was beyond hope of restoration, but it was desired to reestablish normal pressure relationship in that eye.

Here was a startling example of what might have been a tragic disaster, such as should be pointed out in the following case.

Case 2. Mrs. A. T. Brought in by husband for removal of supposed cataracts. Had been under observation at intervals during the preceding year, and impaired vision said to be caused by cataract formation, and advised to postpone any remedial measures until blindness complete.

Examination revealed that the patient was a subject of extreme intraocular hypertension, beyond hope of restoration of vision. This was one of the many tragedies of ophthalmic practice. It was simply a case of mistaken diagnosis and misplaced confidence on the part of the patient.

Again we look upon it as mute evidence of either gross indifference, or of an utterly incomplete examination, the ordinary pressure test undoubtedly having been ignored.

Case 3. Mr. E. G. Sought consultation because not satisfied with results of treatment to check loss of vision presumably caused by optic atrophy of luetic origin. At least this was considered the most likely etiologic factor, since the physician in charge of the case could not think of what else could be the cause. The luetic diagnosis had no clinical basis of support.

One look with the ophthalmoscope gave convincing evidence that we were dealing with an advanced case of bilateral chronic simple glaucoma. The optic atrophy was characterized by a deep cupping, together with the typical undermining of the margins of the discs, otherwise known as excavation. The diagnosis was confirmed, of course, by the pressure test, revealing an excessive degree of intraocular hypertension. One eye was beyond repair; in the other the advancing onslaught of the disease was checked by a decompression operation, which incidentally relieved the distressing headaches.

Another phase of mistaken diagnosis, based on the failure to observe two fundamental principles of procedure in such suspected cases, namely, a proper interpretation of ophthalmoscopic findings, and a simple test for intraocular pressure.

We could recite many such cases, and in each submit some substantial reason why we are bringing this matter to your attention today. Were we to do so, even at the risk of being criticized for a certain repetition, we would still be justified in our endeavor to place particular emphasis on the subject.

The history is very significant in these suspicious cases. It is very particularly desired that a careful history be insisted upon. Many patients may possibly volunteer the information that some member of the family was a sufferer from glaucoma, and themselves suggest the hereditary trend. Such state-

ments should be regarded in the light of their true value, and spur one on to thorough investigation.

It is not within the scope of this all too brief sketch to dwell much in detail upon the various aspects of this important and fairly prevalent insidious disease, but we may enumerate briefly some of the characteristic (or at least suggestive) symptoms:

1. Headache: Usually not constant, but may be severe, and likely to occur most frequently in the mornings. Also may follow some period of emotional stress or strain. Possibly associated with excessive use of the eyes as a part of accommodative strain, especially where premature presbyopia is an integral part of the disease. Often unilateral, and may be accompanied by a disordered stomach. In elderly people, whose refractive errors have been adequately corrected, one should heed the warning concerning such suspicious headaches.

A general physical examination of a patient who seeks advice and relief from recurrent headaches should necessarily include an ocular survey. Many authorities testify to the relationship between glaucoma and the general system, which makes it all the more incumbent upon the diagnostician at least to eliminate the possibility of the existence of increased intraocular tension in patients over forty years of age.

Listen to the words of Risley: "Glaucoma is a disease coming on at an age when wear and tear, harassing vicissitudes, misfortunes, exposure, overwork, and vicious living have sapped the physiologic foundations of life, when infections have found entrance into the organisms through the doorway of the epithelium; and when a variety of toxic and autotoxic and other influences have set up vascular and cardiovascular disease, associated with nephritis, uveitis, high blood pressure, etc."

2. Visual disturbances: In glaucoma simplex the central vision is not disturbed until late in the disease, and defects in the peripheral vision may be discovered only in an objective manner by careful perimetric examination. The patient, however, will complain of recurrent periods of hazy, misty or smoky vision, characteristically mentioning colored haloes around lights. Furthermore, he will volunteer the information that he is unable to read at all at certain times, and has found a frequent necessity for the changing of his reading glasses, without satisfactory results. This is a very suspicious factor, and should put us on our guard. There is a deficient light adaptation, complaint being made of a difficulty in getting around in dimly lighted rooms.

Certain known facts should be emphatically dwelt upon. Small hyperopic eyes are especially prone to intraocular hypertension. Therefore, one's suspicions should be aroused where the following features are present: A small, relatively insensitive cornea; a varying degree of circumcorneal congestion; an anterior chamber more shallow than the average; certain suggestive pupillary changes, namely, of a size greater than normal, slightly oval in shape, sluggish in reaction, with possibly some eversion of the uveal pigment. A substantiated claim has been made that dilation of the pupil will ensue after use of adrenalin in eyes predisposed to glaucoma, causing an increase in the intraocular pressure, which does not prevail in the case of pupils of otherwise normal eyes.

Ophthalmoscopic examination reveals a possible displacement of the retinal vessels to the nasal side of the disc, and perhaps some bending at the margins thereof. If the disease has advanced sufficiently, there may be revealed some undermining or excavation of the disc margins, which is pathognomonic of intraocular pressure.

In this connection we would make a strong plea for a more general use of the ophthalmoscope, the value of which is particularly applicable in the condition we are now considering. Indeed we feel it is rather reprehensible for a diagnostician to consider his examination complete in the headache-complaint cases without properly recording ophthalmoscopic findings. In fact may we hope for the day when the ophthalmoscope will enjoy the same common usage as pertains to the sphygmomanometer.

The usual tests for determination of ocular tension are by means of palpation, the value and accuracy of which can be learned by experience, and more definitely by the aid of the tonometer, the technic in the use of which can be readily learned and utilized with a great deal of satisfaction. This is the sure criterion as to the existence of the state of glaucoma, although the absence of increased pressure at the time of the examination does not necessarily preclude the existence of glaucoma simplex.

A very important consideration is examination of the fields, for changes of a characteristic nature are of great value in establishing a diagnosis. The general practitioner can derive much information by the use of the confrontation test, comparing the observer's field with that of the patient's. Of course, perimetric examinations are more accurate and convincing, and tests on the tangent screen will confirm our knowledge of the effects of the pressure on the optic nerve, by reason of certain defects dis-

closed with special reference to abnormalities of the blind spots.

To briefly summarize the diagnosis, this is arrived at by a record of the intraocular tension, a study of the visual fields, determination of the central vision and the appearance of the optic disc. It is essentially necessary to make an early diagnosis, thereby avoiding any particular damage to the optic nerve.

A few words concerning treatment. If the diagnosis is made in the early incipient stage, miotics are expected to control the fields, the tension and the vision, but the patients must cooperate to the fullest extent, and be willing to keep themselves under discipline and observation at stated intervals.

It is a pleasure to quote Dr. John E. Weeks in the matter of the treatment of chronic simple glaucoma. He says: "For many years I have made it a routine practice when time and circumstances permit to try the effect of miotics in all cases of hypertension before advising operation. There are a number of conditions that may develop which cause me to decide that operation is desirable, and when convinced that operation is the conservative course to pursue, I inform the patient that he must assume the responsibility for the consequences, if the advice is not followed. A diminution in the field of vision for form and colors, with or without enlargement of the blind spot, is an urgent sign, as is also a slight diminution of central vision. It is allowable to permit a low degree of hypertension, if no falling off in the fields for form and colors, or diminution of vision can be detected. Operation is advised, if the patient is inclined to irregularity in the use of the miotics, and in contemplation of long absences from efficient observation by a competent ophthalmologist. Experience has convinced me that early operation is desirable."

In conclusion, may I say that the number of cases of chronic simple glaucoma that reach the office of the ophthalmologist beyond the possibility of help by appropriate treatment is far too frequent, but the list could be materially lessened if the responsibility assumed by the family physician and refractionist were properly safeguarded by a diligent desire to see that such glaucoma-suspected subjects secure that ocular survey to which they are justly entitled.

SENSITIZATION IN ECZEMA

SOME PHASES OF ITS PROBLEM *

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Since the introduction of the patch test as a means of detecting sensitization to the various external irritants in eczema, great strides have been made in the battle with that distressing disease. The literature contains many interesting reports of eczema, due to various sources of irritation. Many cases formerly classified as classic examples of so-called true eczema of unknown cause are today proven cases due to contact with physical or chemical substances, to which the patient has become sensitized. Various terms are used, such as "allergic eczema," "contact eczema," eczema due to hypersensitization or idiosyncratic eczema. Sulzberger,¹ who has worked extensively on the subject, uses the term "eczematous dermatitis." We may use these terms loosely, for after all they simply mean one and the same thing, an eczema or dermatitis due to some substance acting as an irritant to the skin producing a reaction which forms a picture of true eczema.

The patch test** has served the purpose of detecting the causative agent in many cases of eczema. It has also stimulated interest in the allergic phase of the disease. This has led to an altered conception of the causation of eczema. It is not within the scope of this paper, however, to discuss the nature of allergy but rather to call attention to a few practical points which have been found valuable in the management of eczema.

As a rule, when the irritant is removed or contact with the skin avoided, the eczematous process slowly but surely subsides. After a diagnosis has been made and the type determined, the first consideration in case of contact or sensitization eczema is a detection of the offending agent. At this stage of the approach to the problem I should place the history, first and foremost in importance. A careful history, I believe, offers the best opportunity for a swift detection of the cause. First of all, it is im-

* Read before the Forty-second Annual Meeting of Idaho State Medical Association, Lewiston, Ida., Sept. 7-8, 1934.

1. Sulzberger, M. B. and Kerr, P.: Sensitizations of Eczematous Type: 10 Selected Cases Illustrating Some Uses of Patch Tests, *J. Allergy*, 4:326-335, May, 1933.

** The patch test has in many respects replaced the so-called scratch test used many years for foreign proteid sensitization. It is a simple procedure, in which the suspected substance is placed directly on the surface of the skin. The substance is covered first by a layer of gauze, then a layer of gutta-percha or cellophane and held in place for twenty-four hours by adhesive plaster. Readings are made every twenty-four hours for about three days. A positive reaction is indicated by various degrees of inflammatory reaction, varying from mild erythema to edema, vesiculation and even bullous formation.



portant to convince the patient that the eczema is in all probability due to an external irritant and not to "bad blood" or "too much acid." By so doing, his unfailing cooperation is enlisted.

The onset of the disease, his occupation and a careful scrutiny of his habits and environment are important. Many eczemas of long standing have a slow, insidious onset. The first contact with the offending agent is mild and the eruption is often localized. The symptoms are equally mild, manifested by an erythematous patch or an itching, papular eruption. With repeated and continued exposure, the skin becomes more highly sensitized and the symptoms exaggerated, so that we have a picture of severe eczema with intense itching. The inflammatory reaction is intensified to the point of edema, vesiculation, excoriations, denuded weeping areas and, finally, thickening and lichenification. The whole process, in short, has become more severe and extensive in character. It is well, therefore, to bear in mind the fact that the initial eruption is often localized and, when the history reveals such an onset, a clue to the suspected irritant may be found. The following case reports illustrate points in the history and progress of the disease of practical importance in diagnosis.

Case 1. Mrs. A. C., a woman aged 70, referred by Dr. O. H. Christoffersen, was first seen August 9, 1933. She had an eczema of five years' duration. She had an erythematopapular eruption on the hands, forearms, ankles and legs, with marked lichenification and intense itching.

History disclosed that it began on the hands and finally spread to the regions above mentioned. It was seasonal in character, came on in May and disappeared in September. It cleared up for short periods on two occasions, when she left her home in Washington for a trip to Idaho. The itching was so severe that she resorted to walking out doors at night in her bare feet.

She was placed on wet compresses and instructed to make a note of the most prevalent grasses and weeds in her garden. Several days later she returned with some dog fennel, a common garden weed. A patch test on the upper arm, with the leaves and petals, caused a severe dermatitis. She was convinced of the cause of the trouble and has remained free during the past year.

Comment: It was unnecessary to resort to elaborate skin tests in order to elicit the cause. It began on the hands and forearms and did not appear on the ankles until she began walking barefoot at night. She thus inadvertently exposed the ankles and legs to the irritant plant which gave me a valuable clue and finally led to the solution of the cause of her eczema.

In many cases of eczema of the face and neck, hair tonics and lotions, shampoo soaps, cold cream, face powder, et cetera, cause distressing, persistent eczemas which, if allowed to continue, become more

extensive and often involve distant regions partly due to increased sensitization and partly to topical medication.

Case 2. Mrs. F. S. T., aged 35, had a dermatitis of the face of two weeks duration. She had an erythematous scaling, itching eruption of the cheeks. History revealed the fact that the eruption began and persisted from the day she began using a cold cream of local manufacture. She was advised to discontinue the cream and returned two days later with the face almost cured.

A similar case was seen a few weeks later caused by the same preparation.

Case 3. Mrs. G. F. C., aged 31, an army officer's wife, was first seen on April 25, 1932. She had a severe dermatitis of the face of nine months duration, which had been pronounced an incurable eczema. The eruption involved the whole anterior surface of the face except the nose. The skin was of an intense bright red color and slightly edematous. The eyelids were puffy. The eruption stopped abruptly as it approached the neck and hair line. There was an erythema of the axillae and pubic region.

She was placed on wet compresses of Burrow's solution with instructions to return in two days with any and all cosmetics and preparations which she had recently used on her skin. She was well supplied. Patch tests were made from nine different specimens and a positive reaction obtained from a proprietary chemical depilatory, Neet. Needless to say, she cleared up instantly.

Case 4. Mrs. W. C. M., age 47, had a dermatitis of the face of one year duration. She had received treatment by two dermatologists and a general physician. The treatment had consisted of ointment, roentgen ray and dietary regulation, with no improvement. The eruption involved the cheeks, jaw region and eyelids. It was a typical case of contact dermatitis.

She was instructed to abstain from the use of cosmetics for three days, and the condition improved greatly. A flare-up occurred when she used talcum powder. This was the cause of her trouble. No further test was necessary and the condition has remained permanently cured.

An eczema involving the eyelids is frequently due to applications to the scalp, such as hair dyes, hair tonics and shampoo soaps.

Case 5. Mrs. G. C. F. was referred by Dr. Mares of Wenatchee, February 16, 1934. The dermatitis began about December 10, 1933. It first appeared on the eyelids, which became edematous, puffy, red and itchy. Later it involved the forehead, posterior ear folds, intrascapular region and even the hip region. History revealed the fact that she had used rapidol, a hair dye, for three months. No further investigation was necessary.

Case 6. Mrs. S., age 38, a physician's wife, was referred by Dr. W. F. Hoffman on account of a dermatitis of the eyelids. The eruption was of three months duration and was confined to the eyelids. The eyelids were swollen red and wrinkled and intensely itchy.

The nature of the suspected causative agent was explained to the patient in detail in order to secure her cooperation. She had discontinued cold creams and other cosmetics for short periods without amelioration of the symptoms. Moist compresses were prescribed but the dermatitis showed little response to treatment. On her third visit to my office she displayed a new patch on the neck. It was then ascertained that she had been using Grandpa Tar Soap Shampoo for several months. She discontinued this soap and a rapid and permanent cure was obtained.

The patch test was not used to verify the sensitizing agent in this case as it was obviously the cause. No other tests were made. Routine laboratory cutaneous tests would not, in all likelihood, have included the tar soap. The case was solved by persistent questioning of the patient.

Case 7. Mrs. E. J. W., age 33, was referred by Dr. C. F. Watts on account of dermatitis of the eyelids of eight weeks duration. The lids were diffusely erythematous and scaly. She had previously discontinued using Luxuria, Mascara and other cosmetics with no alteration of the symptoms.

Seborrheic dermatitis was ruled out, although she improved on a salicylic acid and sulphur ointment. Two months after her first visit she returned with a flareup of the condition. At this examination I remarked to her that I had never seen such a peculiar and sharply outlined eruption on the eyelids. It consisted of a narrow band about 0.3 cm. wide, extending along the border of the eyelid adjacent to the eyelashes. She made no comment but three days later returned with an eyelash curler. She was found sensitive to the rubber band which came in contact with the eyelids.

I saw another similar case about a year ago. The case reported here was seen in October, 1931. A case of dermatitis of the eyelids, due to rubber on an eyelash curler was reported by Fox.²

It seems worthwhile to record the following case which exemplifies the significance of a localized dermatitis. The localization, as mentioned above, very often indicates the possible source of irritation, for on obtaining the history of a given case, it is of the greatest importance to follow such a lead.

Case 8. Mr. C. C. M., a carpenter, age 57, May, 1933, was referred by Dr. O. F. Lamson. He had an itching eruption on the buttocks of six months duration. It consisted of a band of erythema and papules extending in a circular manner around the dependent parts of the buttocks. The band was about two inches wide and formed a circular area about the size of the brim of a man's hat.

On inquiry, it was found that he had his own exclusive toilet. About one year prior to my examination, he had installed a new wooden seat which was finished with a red stain. This was found to be the cause of the dermatitis.

Two cases of toilet seat dermatitis were reported by Cummer.³ MacKee⁴ also called attention to a case seen by Wise. In Cummer's case the red dye contained in the stain was found to be the offending irritant.

In eczema of the hands the question of fungus infection is an important one. It has been observed that patients with ringworm of the feet and hands occasionally become subjects of sensitization or allergy. This sensitization may persist even after the fungi have been entirely eradicated.

Although mycotic infections of the hands may not be properly classified as eczemas, they must for practical purposes be regarded as such. Eczema of the hands, as is well known, is frequently occupational in nature, and such cases are extremely important from the standpoint of industrial medicine. It is equally important, however, to bear in mind that many of these cases are due indirectly to fungus disease of the feet and a recognition of this fact is one that cannot be stressed too strongly.

I have observed many cases of mild eczematoid ringworm of the hands and such cases are classified as eczema, at least until their mycotic etiology is determined. In these cases we have invariably found a definitely fungus infected area in the interdigital spaces of the toes or around the toe nails; in others, small, sometimes apparently innocent, scaling patches on the lateral surfaces of the toes. In such cases a cure is possible only on condition that these primary foci are treated along with the eczema of the hands.

Dentists frequently associate scaling patches and groups of vesicles on the lateral surface of the fingers with novocaine or procaine dermatitis, but we have invariably observed fungus infection on the feet, which, when cleared up, result in a cure of the hand condition. In these cases the eruption on the hands is due either to an allergy, caused by the living fungi on the feet, or to toxins liberated by such fungi, inciting a reaction on the hands.

The point of paramount importance is to have an open mind on the question, and be willing, as well as always on the alert, to look at the feet in cases of persistent eczema of the hands, particularly if the eruption is composed of grouped deep-seated vesicles and sharply marginated vesicousquamous patches on the palmar and lateral surfaces of the fingers and on the thenar eminences.

CONCLUSION

While the whole subject under consideration in this paper presents many complex phases, a theoretic discussion of the underlying reactions has purposely been avoided.

When a patient presents himself with eczema or dermatitis and the symptoms are suggestive of sensitization, a careful history is of the utmost importance for finding the cause. The patch test may be used routinely, but in most cases a long, tedious and expensive series of tests is unnecessary. In my experience the history more often points the way and the patch test serves the purpose of confirming the findings.

2. Fox, E. C.: Dermatitis of Eyelids Due to Rubber on Eyelash Curler, *Arch. Dermat. & Syph.*, 28:222, Aug., 1933.

3. Cummer, C. L.: "Toilet-seat Dermatitis" Produced by Red Stain: Possibility of Sudan Stain as Causative Factor, *Arch. Dermat. & Syph.*, 27:975-979, June, 1933.

4. MacKee, G. M.: X-Ray and Radium in the Treatment of Diseases of the Skin. Page 498, Lea & Febiger, Philadelphia, 1927, 2d ed.

COSMETIC DERMATITIS*

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A study of history reveals that from the time of antiquity there has been an ever increasing urge to promote physical comeliness. When nature failed to meet the occasion, cosmetics or "beautifying substances" were developed. These, while formerly very crude indeed, have, through the tireless efforts of chemists, evolved into masterpieces of pharmaceutical compounding, for which the public pays millions of dollars annually. If cosmetics produced only beneficial or artistic results, no protest could be raised to their wholesale use. Unfortunately, the promiscuous employment of highly advertised products is responsible for many skin disorders, from unsightly "cosmetic acne" produced by cold, vanishing and massage creams, to the distressing and serious inflammations due to poisonous hair dyes.

DRUGS AND CHEMICALS CAUSING DERMATITIS

Of the numerous drugs and chemicals employed that commonly induce dermatoses, these may be mentioned as examples: paraphenylenediamine, pyrogallol, henna, quinine, chloral, lead acetate, arsenic and sulphur in the hair, eyebrow and eyelash preparations; flaxseed, ammonium hydroxide and sodium bisulphite in wave sets; orris root and calomel in face powders; ammoniated mercury and resorcin in cold and freckle creams; soluble mercury salts, alum and salicylic acid in freckle lotions and skin astringents; benzaldehyde in hand lotions; sodium hydroxide in cuticle removers; hexylresorcinol, thymol and oil of peppermint in tooth pastes; barium sulphide in depilatories; free alkali, mercuric iodide and lysol in soaps; various volatile oils and especially the notoriously pigmenting oil of bergamot in perfumes.

The following is an incomplete list of preparations that have been observed to cause skin eruptions. Particularly flagrant offenders have been designated by *.

(1) *Hair Dyes*: "Black Dye," *Godfrey's Jet Black Dye, etc., Golden Glint, Henna, Inecto, Kolor-Bak, *No Tox, Perfecto, *Ursol, Wyeth's Sage and Sulphur. (2) *Eyebrow and Lash Dyes*: *Lash-Lure, Mascara. (3) *Hair Tonics*: Auxiliator, Danderine, Eczematone, Herpicide (Newbro's), *K. D. X., *Kreml, *Lucky Tiger, *Mahdeen, Olgive Sisters Hair Tonic, Quinine, Southern Rose Hair Tonic, *Wild Root. (4) *Hair Oils*: April Showers Brilliantine, Stacomb,

*Vaseline "Hair Tonic." (5) *Shampoos*: Egg Shampoo, *Fitch's Shampoo, Henna Shampoo. (6) *Face Astringents*: Dorlindora Astringent, *Harriet Hubbard Ayres, Lemon Lotion. (7) *Creams*: *Golden Peacock Face Cream, Harriet Hubbard Ayres Cold Cream, *Harriet Hubbard Ayres Freckle Cream, Hudnut Three Flower Cold Cream, Lemon Cream, *Mercolized Wax, Pompeian Night Cream, *Stillman's Freckle Cream. (8) *Perfume*: Eau de Cologne, Elizabeth Arden, *Evening in Paris. (9) *Powders*: Armand's Powder, Aeolian Rouge Face Powder, Lavender Sachet (Yardley's). (10) *Hand Lotion*: Campana's Italian Balm, *Hind's Honey and Almond Cream, Ilasol Hand Lotion. (11) *Tooth Paste*: Listerine Tooth Paste, S. T. 37. (12) *Nail Preparations*: *Cutex. (13) *Soap*: *Cashmere Bouquet, Jap Rose, *Lifebuoy, Palmolive, Yardley's Lavender, Tincture of green soap.

CASE REPORTS

Case 1. Mrs. C. S. W., white female, aged 42, was first seen at the Clinic in March, 1934. She complained of a skin eruption of the eyelids, neck, shoulders and arms that had appeared periodically during the past six years.

All tests were negative except two of her favorite cosmetics:

24-Hour Reading

April Showers Brilliantine.....	+	+	+
Yardley's Lavender Sachet.....	+	+	+

After discontinuing these preparations the patient improved rapidly.

Case 2. Mrs. W. H. T., a young white female, came under observation for the first time in April, 1934. A most distressing skin eruption, limited to the face and neck, had been appearing recurrently for a fifteen-year period.

Patch tests were done with twenty different possible contact noxae. All were negative in sixteen hours, but at the end of seventy-two hours one became strongly positive, Fitch's Shampoo, + + +.

After the elimination of this offender the skin became practically normal within two weeks.

SUMMARY

1. A partial list, containing the names of some commonly used cosmetics causing dermatitis, has been presented.

2. Some of the drugs and chemical compounds directly responsible for untoward effects have been enumerated.

3. Two cases have been presented to show how distressing dermatoses of long duration may be produced by cosmetics and how the causative agent may be identified by means of the patch tests.

LESIONS OF THE OPTIC NERVE AND RETINA IN PREGNANCY.

Henry P. Wagner, Rochester, Minn. (Journal A. M. A., Dec. 22, 1934), points out that the lesions of the retina and optic nerve which occur in pernicious vomiting of pregnancy indicate a severe grade of general toxemia that may prove fatal even if pregnancy is terminated promptly. Earlier and more frequent ophthalmoscopic examinations in cases of pernicious vomiting may serve to give timely warning that the pregnancy should be interrupted. The development of any type of retinitis in a case of hypertensive toxemia of pregnancy is an urgent indication for the termination of pregnancy, not only because of the danger to vision, but also because of the implied certainty of permanent injury to the general vascular system. In cases in which hypertension develops or increases while the patient is under observation, careful watch should be kept for angiospastic lesions of the retinal arterioles, either primary or superimposed on previous organic changes.

*From the Allergy Department of the University of Oklahoma Medical School, and the Balyeat Hay Fever and Asthma Clinic.

*Read before the Thirteenth Annual Meeting of Pacific Northwest Medical Association, Salt Lake City, Utah, June 21-23, 1934.

GONORRHEA IN THE MALE*

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This is a continuation of a study on gonorrhea in the male on which we reported in *NORTHWEST MEDICINE* in March, 1929. At that time we reported 1429 cases of acute anterior urethritis, using as routine a 1:4000 solution of acriflavine at temperature of 115 degrees in the form of low, anterior irrigations, but not to be continued longer than ten days in succession. We still hold that acriflavine is the best gonocide, provided the organism has not "dug in" and is still a surface infection, but that it should be discontinued at the first sign of irritation.

Our first picture shows the gonorrhea gaining foothold in the meatus and rapidly traveling up the urethra to the cut-off muscle. As you can see, the gonococcus soon invades the urethral glands and can very easily become a deep-seated infection even in the anterior urethra, in which case antiseptic drugs will not reach the organism.

Here is an infected urethral gland which looks not unlike a gourd with a long narrow neck and bulb-like body full of pus caused by the gonococcus. It is obvious that no drug will reach the bottom of this sac. This picture illustrates the formation of scar tissue or stricture in the anterior urethral and nothing but the systematic passage of sounds will result in cure.

The next picture shows the gonococcus traveling beyond the cut-off muscle, involving the prostate and seminal vesicles. Here it is still more obvious that local medication will not effect a cure. The prostate gland is rapidly becoming enlarged and infected and the pathology is not unlike a carbuncle. Any manipulative measure at this time would obviously be poor treatment.

The next picture shows the gonococcus traveling rapidly up the vas deferens to the epididymis which enlarges rapidly and is highly infected.

The diagnosis of acute gonorrhea should be comparatively easy but it is surprising the number of practitioners who do not even stain a specimen before starting treatment. The two-glass urine test is relatively simple but is too frequently overlooked. (Gonorrhea in the female is also frequently overlooked because of neglect to examine smears from the cervix especially after the menstrual period,

and secretions from the bartholin glands, skene's ducts and urethra.)

It is a simple matter to watch the two glass test from day to day and, should the second glass become cloudy, a notation should be made on the patient's record as it usually means infection of the prostate.

Sounds and massage are the sheet anchors of treatment of chronic gonorrhea, together with irrigations of mild silver nitrate solution. We see many cases who present a urethral discharge of years standing, the patient going from one physician to another and giving a history of having had no slides, no two-glass test, no massage or sounds. A slide may show no gonococci, but a secondary infection. If only the first glass of urine is cloudy, the systematic use of sounds followed by irrigations will often clear up this condition. If both glasses are cloudy, biweekly prostatic massage followed by irrigations is indicated.

It rapidly became apparent that something must be found to raise the patient's resistance to deep-seated infections that could not be reached by mechanical measures. We long ago discarded vaccines and then turned to milk injections.

In 1932, we became interested in gonococcus filtrate** (Corbus-Ferry) which gave some remarkable results but, strange to say, we found this especially true with the women. For some time we were unable to obtain this product but recently we have again been using it in a series of cases. It seems to pull the old chronics "over-the-top." It is intended only for intradermal injection and a proper wheal must be produced to obtain the desired results. The initial dose should not be over 0.05 cc. and "the areola at the site of injection should not exceed two inches in diameter. Within this limit of areola formation the next dose should be increased 0.05 to 0.1 cc., given after a six- to seven-day interval and never more frequently. The same criteria for increasing the dose of the filtrate at regular intervals of one week thereafter must be observed. Under no circumstances should the dose of filtrate be increased on the occasion of the next injection, when the signs and symptoms of overdosage described above have occurred."

1103 Selling Bldg.

**Gonococcus Filtrate, Parke, Davis & Co.

*Read before the Sixtieth Annual Meeting of Oregon State Medical Society, Corvallis, Ore., Sept. 27-29, 1934.



PERIAPPENDICITIS

DUE TO PENETRATION BY OXYURIS VERMICULARIS*

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The above in a girl of six presented a good deal of difficulty in diagnosis. Tonsils and adenoids were removed in July.

The patient was brought to the Clinic September 27, 1934, complaining of abdominal colic and vomiting of some twelve hours duration. She was underweight and had an upper respiratory infection and dental caries, chest negative. The abdomen was generally tender without localization and no rigidity. The temperature was normal but the leucocytes numbered 24,000. The mother was urged to hospitalize the patient for observation but decided to have the child watched at home. The condition cleared up inside of a week with enemas, mineral oil and bland diet. The leucocyte count came steadily down to 8000.

She was reasonably well in the interval but had complained off and on about pains in the abdomen since starting school in September. The present illness began about 6 a.m., November 28, when she awoke with vomiting and colic. The mother said she had a good bowel movement and that she then gave her an exlax tablet (notwithstanding previous warning about laxatives in abdominal pain) and subsequently the child had vomited and complained of more pain. Dysuria was also marked.

When seen about 10 a.m. she had a temperature of 99.8 degrees, pulse 116, white count 28,000 and the abdomen was generally tender, apparently worse in the left lower quadrant. The urine showed a few granular casts and a very few pus cells with phosphates plentiful. She was hospitalized and given nothing by mouth. An enema gave good results with some relief. At 4 p.m. the white count was 19,000, temperature 102.4 degrees and pulse 115. There was considerable general and abdominal improvement but still some abdominal tenderness, more particularly perhaps over the right colon. Another enema was given with very good results and much relief. She soon went to sleep and did not complain any longer of abdominal pain. A white count at 8:30 p.m. was 18,900.

She was allowed restricted sips of water and the following morning, November 29, her temperature was 98.8 degrees, pulse 125, and she felt and looked considerably improved. The white count was 14,000. No nausea nor vomiting and she was asking for food. About noon she was given a small soda bicarb enema with clear brown fluid return. At 4 p.m. her temperature was 99.0 degrees, pulse 120, but the white count was 16,000. Otherwise her condition seemed unchanged. The abdomen was slightly tender but soft and there was no localized tenderness. No rigidity. No complaining of pain. No nausea nor vomiting.

Next morning, November 30, she complained of pain in the abdomen again and pointed to the right of the umbilicus with the whole hand. Temperature 98.4 degrees, pulse 116, respiration 18. She appeared slightly toxic. The white count was still 16,000 and tenderness was becoming definitely right-sided and particularly near McBurney's point. No nausea and no vomiting. Operation was decided on because of the localization of the pain and the persistently high white count.

Differential white count gave polymorphs 90 per cent, small lymphocytes 7 per cent and large mononuclears 3 per cent. Urine was now negative except excess phosphates.

At operation the omentum was in the right lower quadrant. A small nodular mass was palpated which proved to be in the omentum and had the appearance and feel of an inflammatory nodule. It was the size of a peanut. This was resected with a portion of the surrounding omentum. The appendix was easily located pointing downwards, and had an area of lymph exudate plastered on the serosa about one-third the distance from the tip. It was not apparently acutely inflamed, and was removed by clamp, cautery and stump invagination.

When examined by the laboratory technician a pin worm (*oxyuris vermicularis*) 8 mm. in length was found under the lymph plaque on the outer side of the appendix. The mass in the omentum proved to be an inflammatory node with broken down center and some pus. There was no pus seen in or on the appendix. The mucosa of the appendix was intact and normal appearing. A second differential white count showed no eosinophilia.

On further questioning, the mother who previously had denied "worms," remembered having treated the child for worms on several occasions but not since 1931. During the summer the child had complained of attacks of mild abdominal pains of short duration but they had only become marked since she started school in September. Postoperative convalescence was uneventful. Stools negative for worms and ova but patient is to be given antianthelmintic treatment.

The condition is by no means rare. Many similar cases have been reported in the literature. According to Deaver intestinal parasites had been held responsible for attacks of appendicitis by Metchnikoff.

IMMUNOLOGIC ASPECTS OF GONOCOCCIC INFECTION. Regarding the immunity against gonorrhea, its fixity and its duration, P. S. Pelouze, Philadelphia (Journal A. M. A., Dec. 15, 1934), has gathered sufficient data which he believes warrants him in making some rather valuable near-rules that help greatly in understanding many of the seeming vagaries of clinical experiences: 1. There apparently is no fixed immunity to the disease exhibited by the susceptible portions of the urogenital tract. 2. In the presence of the disease a transient immunity is developed against the particular type of gonococci involved. 3. This immunity lasts for from a few months to a year or more. 4. It is not active against gonococci from any other source. In fact, the patient may be infected by these even though he has gonorrhea. 5. If the patient transmits the disease to another, her mucous membranes may change the biologic characteristics of his gonococci so that they may superinfect him. 6. Such a superinfection bears an incubation period equal to a new infection. In this it differs greatly from a toxin response from his own infection, which always appears within twenty-four hours. 7. Repeated infections by the same type of gonococci, as by the repeated transferrences between husband and wife, eventually induces a carrier stage wherein the germs live in symbiosis with the host, producing no apparent symptoms. 8. Gonorrhea acquired from a carrier differs in no way from that acquired from one with active evidences of infection. 9. Despite rather general belief to the contrary, it is probable that gonococcic infections, except in carriers, do not lie dormant in sexually active, alcohol consuming males. In other words, they produce symptoms of their presence.

* From the Sweet Clinic.

THE FUTURE OF MEDICAL PRACTICE*

WILLIAM T. JOHNSON, M.D.

CORVALLIS, ORE.

The past four years have been lean ones for all of us. During this time we have worn out our old clothes and have replaced them with ready-to-wear hand-me-downs. Our automobiles have been replaced with smaller and cheaper ones. Our families have been on a budget and our vacations have been fewer and less expensive. In our offices we have cut down on our help and in most cases have had to cut salaries. None of these cuts have added to our efficiency, but they have been forced on us. In spite of all this, I believe that here in Oregon we are better off than the doctors in our neighboring states and very much better off than those in the thickly populated centers where there is so much unemployment. I have no statistics to prove this, but have arrived at this conclusion from what I have read, seen and heard, and from talking to people of the various sections. We have had no earthquakes, floods, drouths or famines, and our winters have been mild. For all this we should be and I am sure are duly thankful.

The medical profession is faced by an issue it cannot evade, for the average citizen with his lowered income is less able to stand the cost of an unexpected illness than he ever was before, at a time when the cost of medical care is on the increase. The physicians and surgeons are not responsible for this increased cost. It is the inevitable result of research, science, discovery and invention.

When insulin was discovered it made the cost of the modern treatment of severe diabetes almost prohibitive for the low wage earner and yet he demanded it. The roentgen ray, which is well-nigh indispensable, has added another heavy cost, but the poor and rich alike demand its frequent use and will not patronize a doctor who does not have access to one. The electrocardiograph, metabolator, blood pressure apparatus and the well equipped laboratory with its trained technicians all cost vast sums of money, but they have come to stay, for they are essential to a correct diagnosis. The various machines I have mentioned are short-lived, expensive to keep up, and must be replaced from time to time as better and more efficient ones are made, for the public demands the best that science, research and discovery can give, regardless of whether or not it can afford it.

How can we meet this economic problem? On the one hand, we have the sick public or average citizen with his lowered income demanding better but cheaper medical service. On the other, the doctor who is giving a better service than ever before, but at a greater cost both to himself and his patients. How can we reconcile this situation? The public is demanding a solution, and if the medical profession has none to offer, it is safe to say the aroused public will.

When this attempted solution has passed through the hands of labor councils, lay workers, employers, politicians and racketeers in and out of the medical profession, each trying to get some special concession for the particular group he represents, the solution will not be to our liking. The doctor will be the "forgotten man." This is an economic problem and we must adjust ourselves in some way to meet it, and, in so doing, see that our standards of medical ethics are not violated.

A group of wealthy foundations got together and made up a pool of \$1,000,000 for study of the cost of medical care. To make this study a committee of laymen was selected, men who were not particularly friendly to the medical profession but who could be depended upon for fairness and diligence in their investigations. They began their work in 1927, before the depression was even thought of, and finished this exhaustive study five years later. One of the remarkable points in their report was that *the doctor is underpaid*.

The benevolent capitalists, who out of the kindness of their hearts first set aside their millions to endow great hospitals to care for the sick and unfortunate, were philanthropists who should be highly honored, for their intentions were noble. But when they entrusted the administration of these funds to laymen who knew nothing about medical affairs, they laid the corner stone for socialized medicine and paved the way for communism. What they did was soon forgotten and the people whom they intended to help, if they thought of these benefactors at all, thought of them only as slave drivers who had acquired their wealth through robbing the public and grinding down the poor.

Too often and in too many places these hospitals were built where they were not needed, where they were in active competition with privately owned hospitals and clinics that were giving good service, and in order to make a showing they took in people who could and would have paid their way at some privately owned hospital. I read a report in the *New York Medical Journal* a short time ago, in

*President's address, read before the Sixtieth Annual Meeting of Oregon State Medical Society, Corvallis, Ore., Sept. 27-29, 1934.

which it told of a man in a charity ward who, thinking he was about to die, called in a lawyer to make out his will. In this he disposed of \$100,000 worth of property!

Charity institutions, unless properly conducted and placed where charity is actually needed, are doing a great damage to our country. Sturdy, independent, self-respecting citizens, who have prided themselves on always having paid their way, are induced by these well-paid lay health workers to become charity patients, and having tasted the fruits of paternalism, develop a complex that makes them good subjects for communism.

On practically every college campus of the United States are teachers who, if not active communists, are strong communistic sympathizers. To them it is their religion and, like the disciples of old who preached the religion of Jesus Christ, they feel it their duty to humanity to preach the doctrine of communism and convert to this faith the young men and women with whom they are in daily contact. These unamerican professors are preparing these boys and girls of ours for leadership in a movement that some day may disrupt our government. They are teaching them hatred of capital and wealth, disrespect for our laws, contempt for our Constitution and disloyalty to our flag. It seems to me it is about time to clean house and replace these public enemies with 100 per cent Americans, and to require all teachers in our schools to take an oath of allegiance to support the Constitution of the United States and to respect and obey the laws.

State medicine is never ideal, but as practiced in Oregon is endurable. Many of the objectionable features of the work of the State Industrial Accident Commission have been eliminated. If this gets no worse we can stand it. The state hospitals for the care of the tuberculous and insane are doing splendid work. As long as the care of these institutions is under the present management, no reasonable objection can be raised, but should new buildings be needed and placed anywhere for the convenience of certain groups, where the control would be divided or vested in any other than the present set up, I can see just cause for complaint.

On the University of Oregon campus at Eugene and the Oregon State College campus at Corvallis is a health service that is purely state medicine. Under its present management it is functioning well, but here again we must be on our guard, for on each campus they are asking for a sixty-bed hospital. Why one so large? Because it has been

proposed to build for the future, build on each campus a hospital large enough to care for the students, professors, their wives, their children; in fact, all on the college payrolls.

Think of the cost to the tax paying public to keep up a sixty-bed institution where a twenty-five-bed hospital would not be filled except in times of epidemics. As it was proposed to build these hospitals with money borrowed from the P. W. A., a written protest was made to the P. W. A. board and a public hearing arranged to show cause why the loan should not be made. At this meeting it was pointed out that these hospitals would be in competition with privately owned and well equipped institutions in each town, hospitals amply able to care for all the student needs and town needs as well. It was also shown that one of these hospitals because of empty beds was in the hands of a receiver, while the other for the same reason had a heavy bonded indebtedness against it. The protest was overruled, and the plans were accepted by the Board and approved by the Dean of the Medical School. If this financing of unneeded projects is part of the New Deal, then I am against it, especially so when state or government institutions are built to compete with privately owned institutions.

Long before the depression was felt in the U.S.A., relief for the low wage-earner was being tried out in Germany and in England. In both countries it has been a costly experiment, a heavy burden to the tax paying public. It is a matter of history that can be easily verified that these experiments have been an everlasting blow to the medical profession in Germany and England, a setback from which none of us will live to see them recover. Practically every civilized country in the world has at some time or other tried out some form of socialized medicine, and it would take months and even years to make a critical review of all that has been written about it. In every instance the scheme has worked to the disadvantage of the government, the people and the medical profession.

Compulsory health insurance started in Germany in 1881. Bismarck did this as a political expedient to appease the Socialists who were in power, and who were demanding that something be done to relieve the distress of the underpaid wage-workers of Germany and give them better and cheaper standards of living. This being a political movement organized by laymen, it is not surprising that the medical profession was ignored, except to limit the total amount of money which any doctor could receive from the insurance fund and to enlarge the

list of wage earners who were eligible to take out this insurance. Many of these workers were taken from the doctors' private practice, so the greater the number under insurance the fewer the number left for their private practice. The start was made with a small group of underpaid workers, then a group of better paid, next salaried workers were added until at last the entire wage earning population was included.

One of the very best discussions of the German situation is found in a book, "The Doctor's Mission," by Dr. Erwin Lieke. It has been translated into English. Dr. Lieke began his medical practice as a panel doctor and was an enthusiastic supporter of compulsory health insurance. But after he had worked at it for a time he saw the disadvantages of it to both doctor and patient and got out. In summing up the matter he says:

"In the first place, the natural relations between doctor and patients are destroyed. Entire confidence between the two is lacking. Between the patient and the doctor stands a bureaucratic administration. A person who is sick must first appeal to the employer, then he has to apply to some official, and at last he goes to the doctor. This complicated course may be unimportant in case of an injury, let us say a broken bone, but this procedure is troublesome in the innumerable disorders which affect both body and mind. For many patients it is an exceedingly depressing thing that they are not merely Mr. or Mrs. So-and-so who is sick, but that they are booked by the bureaucratic machinery as No. 17,469,434. Medical secrecy, as observed by every doctor, is destroyed where there is social insurance. On every document the name of the disease is written, and many of the organizations do not allow the name of the disease to be given in Latin."

Dr. Lieke enumerates further disadvantages for the sick, including the undermining of the manliness of the people, causing their physical and moral degeneration. He remarks in this connection,

"If we go through the casebooks of panel doctors, we find that they are overwhelmed with ridiculous trivialities and that panel doctoring produces and carefully nourishes general neurasthenia and hypochondriasis. Colleagues of mine, highly experienced in panel practice, tell me that two-thirds of the activities of panel doctors are superfluous. In Poland, where social insurance is flourishing, the disease statistics have a special column of cases superscribed 'nihilitis'."

Dr. Lieke also quotes Dr. Balmer to the effect that "the percentage of malingerers convicted of having shammed sickness rose in thirteen years from 2.8 to 8.3 per cent." On the other hand, he points out, "it is found that the health and healing capacity of individuals marvelously increase when they can no longer rely upon social insurance." As a matter of fact, "sickness insurance has become a source of income to the workers in case of unemployment and distress. It need scarcely be pointed out that the misuse of social insurance, its use for

obtaining not health but doles from the community causes grave mischief."

Equally suggestive are the conclusions of Dr. William A. Brend, published in his treatise on "Health and the State" in 1917. These conclusions apply to England and Wales chiefly, and reflect present-day conditions equally well if not better than the described situation many years ago.

"By making the status of the doctor both political and economic in relation to his income and security, his professional status has been measurably undermined. The doctor's duty to furnish a certificate of illness as a prerequisite to the drawing of cash benefits on the part of the insured has given him a power bound to be abused to an enormous extent. If he refuses to certify the patient as being sick and, therefore, unable to work, he loses prestige with his panel clientage and his patients have themselves transferred to more tolerant panel doctors."

As observed in the book, "This Panel Business," "the doctors everywhere are being attacked for giving certificates too easily. Medical remuneration is being cut down, and many doctors are not earning enough to keep themselves alive."

Hospital associations have been operating in Oregon for many years. They have not been satisfactory because they have been managed by laymen and have not given the sick or injured person the right to choose his own physician. In an attempt to overcome these defects various other hospital associations have been formed by groups of doctors which give to the sick or injured person the right to choose his own doctor.

These doctor-managed hospital associations are doomed to failure also, first, because they cannot give a high type of service for the monthly fee charged; second, because in securing contracts for new business they are bound to take in wage earners who can afford to pay and would pay a reasonable fee to the doctors in private practice who do not care to be identified with any form of contract practice; third, it will fail because the principle is wrong. It will encourage competition among the doctors who are in the contract business and will force them to solicit business. Whether this is done directly or indirectly, through doctors or through lay workers, makes no difference; it will be a violation of the code of ethics we are taught to uphold and respect; fourth, it will disrupt the medical profession and cheapen it in the eyes of the public. What more can you expect when doctors disagree?

The medical profession is facing a crisis and we are due for a change of some kind. In order to protect ourselves I want you all to give this your serious consideration. Judging the future by the

past, I have a perfect right to believe that it is only a question of time until our lay friends, social workers, politicians and racketeers in and out of the medical profession will try to force some sort of fool legislation upon us. State medicine will not be radical enough for many of the communistic professors and brain trusters, so it will likely be a compulsory health insurance scheme to cover all workers from the lowest to the highest paid, giving them their wages when unemployed or too sick to work and hospitalization to all who need or desire it.

The doctors will either be hired by the government or work on a fee basis with a schedule of fees made up by laymen. If the medical profession and hospitals rebel at this, the government will either take over the existing medical schools and hospitals or build better and finer ones where it can educate and train its own doctors at the government's expense. What is the remedy? There is only one answer—a better understanding, a better cooperation and a better organization of the medical profession.

ECONOMIC PROBLEMS OF PHYSICIANS OF WASHINGTON

H. J. DAVIDSON, M.D.

SEATTLE, WASH.

Economic forces, far flung as the boundaries of modern civilization, press increasingly to change what we were wont to consider the orderly established relationship between the members of the medical profession and those whom they serve. It is the folly of ignorance to hold the opinion that passing years leave us unaffected, and the wisdom of the foolish that counsels us to practice the philosophy of Nirvana and, as disciples of Mahatma Gandhi, wrap our loin cloths about ourselves and wait in blessed resignation till the forces envelop us and carry us to financial ruin and scientific decadence.

The period of free and untrammelled relationship between physician and patient is rapidly passing. Few there are who realize to what extent that relationship has already vanished. Governmental and other agencies have been interposed between the doctor and his patient. They assume authority to dictate what physicians shall render service, what individuals shall be served and the financial remuneration of the physician for his services.

Twenty-one countries in Europe are operating

plans which have changed the old order of the relation between doctor and patient. A population in excess of 260,000,000 people, of whom some 65,000,000 are beneficiaries, is affected. The percentage of the population who are beneficiaries varies from 76 per cent in Austria to 7.5 per cent in Esthonia, with an average of 68 per cent in Germany, Austria, Belgium, Denmark and Sweden, and about 50 per cent in Great Britain. In five countries 80 per cent or more of the medical profession practice the New Era medicine, and in ten others from 50 to 80 per cent. The percentage of doctors practicing the New Medicine is under 33.3 per cent in but one country out of fifteen reported. In our nation forty states, with a population in excess of 100,000,000, have introduced plans under which some 15,000,000 are beneficiaries and a majority of the doctors voluntarily or involuntarily have been swept into the service.

Thus in Europe and the United States the leaven of the New Order is planted in a population totaling more than 360,000,000, of whom some 80,000,000 are now beneficiaries. And this does not tell the whole story. The West Indies, the countries of Central and South America, Canada, Australia and South Africa are carrying on experiments along the same line.

Out of all this great group of more than a hundred experiments, not one can be said to be satisfactory. Differing local conditions have given rise to widely different plans. It is not rational to assume that a system or plan fairly satisfactory in one nation or state will be equally satisfactory in another. Study of new medical service systems elsewhere has practical interest to us only insofar as it helps us to solve our problems. It is futile for us to search for a ready-made plan which will suit our need.

Comprehensive critical study reveals certain definite undesirable features, the inclusion of which in our state plan should be resisted with all our combined strength. One of the most important of these is complete lay control. Experience shows indisputably that under such a plan the defects include bureaucracy with evil political alliances, excessive cost of lay overhead in the form of high lay salaries, luxurious headquarters and elaborately equipped service institutions, as diagnostic clinics, hospitals, and sanatoria, with the reduction of the professional personnel to the status of hired employees at the lowest possible remuneration.

Another evil under bureaucratic lay control is the tendency to reduce the medical professional to the

*Read before the Forty-fifth Annual Meeting of Washington State Medical Association, Spokane, Wash., Sept. 10-12, 1934.

status of a detective force for the purpose of conserving the funds devoted to service, that more may be diverted to buildings, equipment and salaries, to the detriment of the professional services rendered the insured. Another important problem involves the question of free choice of the physician by the patient, with the experience of the world showing conclusively that the best services are rendered under systems in which free choice is most widely practiced. Still another is the growing tendency on the part of the insured to cultivate a "will to be sick" instead of the laudable "desire and will to get well and continue well."

Another is that the ever increasing scope of coverage has a tendency to increase cost to a prohibitive level. The problem of providing full cost of coverage versus the policy of partial cost as practiced in France, thereby preserving the advantage of making the insured responsible for a part of the cost of each illness, is worthy of consideration.

Our policy through our constituted authorities should be so to direct our study and political efforts that we may have the best possible plan to meet our local problems, namely to protect the interests of the insured and those of the medical profession, at the same time giving just consideration to the interests of those who provide the major portion of the cost.

Our local problem in Washington involves a population of less than 2,000,000 people, of whom some 60,000 come under the provisions of the statutory act, and only for that portion of their total professional services which is occasioned by accidental injury arising out of employment in extrahazardous industry. The law was passed in 1917. Although it has been subject to majority criticism from employers, employees and physicians, adequate constructive amendment has not been possible. A wise policy can be more easily adopted while our community is small, while the state is less populous and the industries are less numerous and less diverse.

Of the defects in our present systems we can enumerate several.

1. Only a small portion of the total medical and surgical services of the beneficiaries is provided and supervised by legal enactment.

2. The supervision of that portion has not always been wise. It has suffered the blight of politics.

3. The responsibility of supplying broader coverage to those now enjoying partial statutory coverage has been assumed by individuals and groups in our profession and partly by commercial insurance companies. This extra coverage is wholly unsupervised

to the detriment of the service. Efficiency of service has often been sacrificed on the altar of profit. The public has not been sufficiently informed of the facts.

4. Free choice of physician by the patient has been unduly restricted.

5. Adequate provision for lower cost medical and surgical services to those in the lower wage class has been neglected and is opposed by individuals and groups in our profession.

6. Efforts to prevent or curtail lay control and administration of insurance or benefit funds have not received the support they merit by the constituted authorities of our association.

7. The present efforts of certain hospitals towards vesting administrative control of insurance or benefit funds in lay hospital boards constitutes a policy unsatisfactory to the medical profession, detrimental to both patient and physician. This drift merits our united and continuous opposition.

Three years ago our House of Delegates created the committee of seven and instructed it to study economic conditions affecting the medical profession and those it serves. That continuity of study could be the better sustained and constructive recommendations could more certainly be assured, the tenure of service on the committee provided for retirement of but two members in any one year. This is a wise provision and should be continued.

The committee has made conscientious effort to serve the Association well. Meetings have been held with commendable regularity with full membership in attendance except in very few instances. The individual members have contributed generously to all phases of the work, and much ground has been covered. Because of influences over which the committee had no control, constructive recommendations made by the committee and approved by the constituted authorities of the Association failed to receive the support necessary to achieve their adoption. I refer particularly to changes in the medical practice act prepared during the year 1933 and approved by the House of Delegates at its last annual session. The survey of the condition of the medical profession through the questionnaire distributed to the physicians of the state has been prosecuted by the committee, and the economic survey of the population of Pierce County at a cost of many thousand dollars has been conducted by a part of the committee at practically no cost from the revenues of this association. Yet there are those who have alleged that the committee is squandering the money of the Association to little or no purpose.

The committee as such and its members have given freely of their time and talents to cooperate with those to whom was delegated the responsibility of organizing and launching the county medical bureau system throughout the state. That system has amply justified its existence in preserving to a greater degree the principle of free choice of physician to the patient, and a broader distribution through the profession of medical service and revenue derived therefrom, and in the attempt to provide adequate services at low cost to those in the low wage class. It has effectively prevented the launching of several medical and hospital service insurance promotions, some fostered by members of this Association and some by lay organizations, some by doctors of medicine not members of the Association, and some by cultists.

The cost of care of indigents varies greatly in different counties in our state. A comprehensive study of this problem is worthy our best talents. We are derelict in our responsibilities as citizens unless we approach this problem courageously and effectively.

Our membership is increasingly insistent that we be paid something for services rendered the indigent. We can hope for realization of that only by bringing about savings in other departments of the service. It can not be done in ways that will increase the already too heavy tax burden. We would like to see studies continued which would lead to restriction of the number of free clinics in the state and the preservation of the family physician relationship, and to distribution of the care of the indigents as far as practical among the physicians of the respective localities.

We believe the membership of this Association is overwhelmingly in favor of preservation of the principle of free choice of physician, and that they desire its administrative officers to do everything in their power to its accomplishment. We believe the medical profession should direct and largely control any comprehensive plan of health insurance which may be introduced in this state, that lay control is financially uneconomic, contains insuperable obstacles to best possible professional services to the insured and that it is detrimental to the highest possible attainment of proficiency in the medical profession.

A considerable number of our larger and more enlightened industrial organizations have efficiency engineers, whose functions include attention to the physical condition of employees. They are willing

to cooperate with us in establishment of the principle of free choice of physician, if we can show satisfactory evidence of maintaining a high standard of service at a price acceptable to them. The problem is squarely up to us. We must seek and practice friendly cooperation; otherwise we will meet formidable opposition, and objectionable plans under lay and political control will be increasingly forced upon us.

Like a plague of seventeen-year locusts, the colleges and universities are turning out a multitude of social service experts, men and women taught by academicians who themselves have spent their lives in stultified collegiate atmosphere, sustained by salaries derived from taxation. They lack that broader vision which comes only through experience in the world of competitive endeavor. They and their disciples presume to tell those who make the wheels go round how it should be done and how the monetary returns therefrom should be distributed. There is danger that their efforts will result in more confusion than benefit. We urge careful analysis of their conclusions and critical appraisal of their recommendations. We are not yet convinced that Ph.D.'s in social science are better qualified than M.D.'s to present solutions to medical problems. They seem jealous to justify their existence. Their energy seems boundless.

The committee stands with the American Medical Association in its recent pronouncements as expressed by the action of the House of Delegates at the Cleveland Session under headings, "Changes in Constitution and By-Laws and Amendments to the Principles of Medical Ethics."

The committee approves unreservedly in principle the seven points which define ethical and unethical contract practice, and commends the county medical bureaus as the most effective agency thus far suggested to combat objectionable practices in this state. Critics of the bureaus will charge that they violate rule number one which declares against solicitation. The rule refers to practices by individuals and limited groups, and not to a practice conducted or authorized by a county society, under which benefit accrues to the public and to every physician in the community, whether he is or is not a member of the county medical society. It approves the sections relating to unethical practices of groups and clinics, the one on the unethical practice of physicians who hire themselves out to lay bodies, groups or individuals, and the one which defines unethical publicity regarding extraordinary

equipment and superior services by individual hospitals. These all relate to problems under consideration by the profession in this state and we hope the House of Delegates will take specific action endorsing each section separately that there be positive declaration of the organized medical profession in this state on these matters.

We likewise approve the ten points governing the conduct of "social experiments" and recommend that the House of Delegates officially approve them as applicable to this state. We commend for your consideration the desirability of continuation of the work and request you to state to your representatives in the House of Delegates your personal opinion so the action of the House will more certainly represent the attitude of the majority of the membership of the association.

CARE OF COUNTY INDIGENTS*

E. L. SPOHN, M.D.

COEUR D'ALENE, IDAHO

The medical and surgical care of indigents is a subject of such proportions that it merits a careful study on the part of all who are interested in any way in seeing that proper care is accorded them. It is important alike to the medical profession, municipal authorities, the patients themselves and taxpayers generally that any service rendered to such indigents be by a properly qualified doctor and at a cost to the taxpayers as low as is commensurate with the value of the services rendered.

The dictionary meaning of the word indigent is "destitute, in urgent want," but within the past two or three years it has become broad enough to include not only those who are in really desperate circumstances, with no property or other resources, or the old people with no means of income and unable to work, but it is being generally construed (at least by the would-be beneficiaries) to include men who are out on "work relief" as much as four days a week and receiving other help in the form of "direct relief" and even to those who are on full time work relief. Indeed, many of these ask more or less boldly for a written certificate stating that they are unable to work so that they can demand direct relief, and avoid work altogether.

The purpose of this paper is (1) to call attention to the actual conditions as they exist under the present system; (2) to arouse the profession to the need,

not merely of concerted action, but of an aggressive and well organized campaign against impositions which are rapidly growing, simply because they have met with no organized opposition; and (3) to suggest remedies for the conditions.

Basing my remarks largely upon my own experiences as county physician for Kootenai County during the last eighteen months, but with the explanation that similar experiences are reported from many other parts of the state, I do not hesitate to make the statement that county physicians are subject to impositions so gross as to be intolerable. Emergency calls are made in scores of instances where no emergency exists, many unnecessary night calls are made and these for long trips over bad roads to places which it would be difficult to reach even in the day time, only to find there had been little or no occasion for such a call. Many times I have been asked to sit down and wait while some one goes to the neighbors to call the patient. Why is this? Just because it is free.

An illustration of an emergency call was for two young men, fourteen and seventeen years of age having ptomaine poison. I grabbed my stomach tube and was at the house before the mother had gotten back to her home from phoning, to see the two boys in the back yard playing football. Every county doctor has scores of such emergency calls. Why? It is free. And so many, who should be paying patients for a private practitioner, chisel on the county physician that they have grown into an immense group.

In order that I might obtain all possible information upon this subject, I recently sent a circular letter to the recorder of each county in the state. Forty-four in all, requesting replies to certain questions, as to whether a county medical officer was regularly employed, whether elected or appointed, whether on salary or contract, amount of stipend, number of indigents, patients treated, office and hospital calls, major and minor operations, obstetric cases, hospitalization costs, etc., and also asking for suggestions tending toward a more satisfactory service. I received replies from twenty-eight counties, for which I acknowledged my obligation to the respective contributors, and also received one or two good suggestions to which I will refer later.

On the whole these replies show that conditions similar to those existing in Kootenai County are found in the larger counties of the state but in the small counties the present system works fairly because the county physician becomes acquainted with

*Read before the Forty-second Annual Meeting of Idaho State Medical Association, Lewiston, Ida., Sept. 7-8, 1934.

every family in the county, knows their conditions and whether they are or are not entitled to his services at the cost of the county. Then there is less competitive bidding in the small counties where there are fewer doctors.

In the smaller counties it seems to be the custom to pay a small salary, in one case reporting as low as \$100 yearly, the county bearing the costs of hospitalization, medical and surgical supplies and nursing, etc. But I notice that even in the county referred to the physician cared for 59 patients, 73 office calls and some 30 house calls. He also had 996 hospital calls, 4 major operations, 2 minor and 2 obstetric cases, for all of which he received an average of 1.5 per cent of a standard charge.

In one of the larger counties the replies show that the physician's earnings, based upon our minimum scale, would have amounted to over \$33,000, while the salary paid amounted to eight cents for each office call, sixty cents for each minor operation, \$1.40 for each obstetric case and \$4.00 for each major operation. Can you imagine the medical profession getting down to the low standard of doing gastroenterostomy, cholecystectomy, decompression operation, amputation of a leg or arm, strangulated hernia, appendectomy, proctectomy, hysterectomy or any other major operation for the sum of \$4.00, and making his eight or ten postoperative calls for the sum of eight cents each? Can you imagine their doing minor operations, such as tonsillectomies for sixty cents, with eight cents for each aftercall; or delivering a baby for \$1.40 with eight cents for each aftercall? This is the record of one county with a population of 6,599 people.

We are in desperate need of some standardized system, as county number 18, with a population of 1,000 people, receives more than four times the standard minimum scale, while county number 19, with a population of 19,000, receives less than 1 per cent of a minimum scale. Referring briefly to my own experiences during my first year as county physician and health officer for the County of Kootenai, I have gone over the work carefully.

Receiving \$400 per month for hospitalization, medicines, supplies, nurses' care, casts, crutches, roentgenograms and including medical and surgical care, during the year I have made 4,222 office calls, 1,148 house calls, 1,076 hospital calls; performed 3 major and 586 minor operations and attended 31 obstetric cases. This would amount to \$27,315 worth of services rendered, excluding hospitalization, nurses care, drugs, supplies and roentgeno-

grams. Deducting expenses for these from the salary given me, I find that I rendered services to the county for a salary of less than 1 per cent of a standard minimum charge, which includes being called on at any time of the night or day, seven days a week and no holidays, unless I paid for the services rendered while I was away. You will see that this also excludes car mileage, office rent, light and water, insurance, office nurse and other expenses incidental to the practice of medicine. It is certain that, if the patients cared for during this period had been paid patients as distinguished from county indigents, the number of calls and the number of trips would have been 50 or 75 per cent less.

There are many county contracts which include, as mine does, medical and surgical services, hospitalization, casts, surgical appliances, gallons and gallons of medicine, thousands of pills, crutches, and supplies of every kind, ranging from Dr. Jones' Golden Anniversary Discovery and pink pills to methods of birth control. The county physician must listen to all neighborhood complaints of outdoor toilets, offensive chickens, hogs, dead carcasses not buried, to the impure water of water companies, etc., while he worries and struggles to meet such costs and expenses as office rent, car maintenance, heat, light and water bills, insurance, medical dues, licenses and pay his office help by working day and night, Sundays and holidays alike. Who is really to blame for this condition? The doctors themselves; they are the ones that must correct this condition.

Let me digress from the indigent subject for just a minute to point out other conditions which are seriously prejudicial to the profession. On the authority of that little magazine, *Medical Economics*, we learn that a nation-wide survey shows the gift of America's doctors to charity amounts to one million dollars daily, that they contribute 25 per cent of their time and skill to work, for which under existing conditions they can expect no compensation. In addition to this they spend another 25 per cent of their time on services for which they make, but never collect their charges, so that one-half of their working hours is given over to free work. It is probable that none of us collect more than fifty per cent of the value of the services we render. Think of it; \$375,000,000, our yearly gift to charity. Is there any other profession or industry in the entire country giving so generously to the public?

And here is still another angle. Dr. J. L. Pomeroy, President of the western branch of the Amer-

ican Public Health Association, speaking in Pasadena at the sixty-third annual meeting of that organization before an audience of 3000, said that cultists take \$125,000,000 annually from the American public, a sum equal to the total appropriation of all health departments of the United States, and that the American public also spends approximately \$360,000,000 annually for patent medicines and pure quackery.

These, then, are the conditions. Surely they are in themselves sufficient to arouse us to a sense of our danger. During the past two years the number of dependent indigents has increased to alarming proportions. Provision is made for their food and clothing, and these are paid for at fair prices without question. The grocer and the clothier are not asked to contribute 50 or even 25 per cent of their value or profits as a gift to charity. Neither of them has to spend years of time and thousands of dollars in study to fit him for his business. Are not our services at least of equal value with theirs? Picture, if you can, a nation without doctors.

Recent years have brought into our profession keen rivalry, cheap competitive bidding, solicitation and many other abuses calculated to lower the dignity of the profession and the quality of the service rendered, all of which call loudly for some kind of corrective measures. The standards, the dignity and the ideals of our profession must be maintained, whatever the cost, and no one is going to help us. We must do it ourselves. How? That's the question.

The law says plainly that the county is liable for the care of its indigent poor and all expenses in connection therewith, and the implication is plain that this should be paid for at a fair price. Skilled mechanics and even laborers are organized and these demand and receive from municipalities as well as from other employers payment for their work according to a standardized and satisfactory scale. Why? Because they are organized.

We should see to it that the county officials secure for the indigent sick the best available medical and surgical care and pay therefor a reasonable compensation based on a standard scale, uniform throughout the State, and that the work is fairly distributed among all local members of the profession. Our state association should work out some feasible scheme for submission to county and state authorities which will be uniform, not one county paying four times and another county less than one per cent of minimum standard charge.

SUMMARY

The care of indigents rests upon the county, the state, and Federal government, not upon the doctors. The county should investigate every case and segregate every chiseler from the county indigent patients.

Those who are not bona fide indigents must be reminded firmly that charity treatment is reserved for those actually in need and that all others must go to private practitioners.

No person should be given treatment in a tax supported institution who is not a bona fide indigent properly eligible for charity.

"Free treatment is for indigents only" would be a good sign for all institutions to display.

Politics should play no part in the administration of any hospital.

All contracts for medical and surgical care should be submitted to the county or state medical association for their approval before becoming operative and this association should be given the right to question anyone upon matters related thereto.

A charge of unethical conduct should be preferred against any doctor for (1) solicitation of patients directly or indirectly, (2) underbidding to secure contracts, (3) accepting compensation inadequate to assure good medical services, (4) any conduct or practice contrary to the ethics of the profession or calculated to lower its dignity or standing in the community.

And last, and most important of all, let us not forget that our cause is a vital one; our standards, our ideals, our very existence as a dignified profession are threatened and endangered. If we are to wage a successful fight we must realize the urgency of its need, we must present an absolutely united front, the campaign must be organized, militant, aggressive, progressive, consistent, insistent and persistent. Then, and then only, will the medical profession be relieved of \$365,000,000 worth of free service to the public yearly.

INDICATIONS FOR THERAPEUTIC ABORTION FROM THE STANDPOINT OF THE NEUROLOGIST AND THE PSYCHIATRIST. Clarence O. Cheney, New York (Journal A. M. A., Dec. 22, 1934), reviews some of the opinions of neurologists and psychiatrists on therapeutic abortion and reports a number of specific cases of mental disorders, involving the question of abortion, from which he concludes that: 1. There appears to be no individual neurologic or psychiatric disorder that is an absolute indication for abortion in women suffering from such disorders. 2. Experience shows that some women with severe advanced neurologic disorders may go through pregnancy and have healthy children. 3. Experience shows that some women suffering from severe mental diseases may pass through normal pregnancy and childbirth. 4. Experience shows abortion does not necessarily prevent recurrence of mental attacks.

NORTHWEST MEDICINE

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EDITORIAL

HEALTH INSURANCE IN WASHINGTON

The opinion seems to be quite prevalent among laymen and the medical profession that some sort of health insurance legislation is likely to be considered this winter in many of our state legislatures. In Washington there has not yet been disclosed such a measure of local origin. There has appeared, however, a copy of an act, emanating from New York City and prepared by a group of anonymous experts organized under the alliterative title, "American Association for Social Security."

It is rumored that this will be introduced, but by whom it will be sponsored has not been disclosed. It has been stated that this measure is scheduled for presentation before some twenty-eight legislatures. It seems preposterous that an identical bill could be considered suitable for the various conditions existing in so many parts of the country. Since so far as known at this writing this is the only concrete measure proposed for legislative consideration in this state, it seems desirable to present an analysis of it with some comments as to its applicability.

Compulsory health insurance, similar to that now practiced in many European countries, has been proposed for the United States. Yet it is generally admitted that none of these plans would fit into the social and economic structure of this country. Proponents of the health insurance idea find many weak points in all European plans. The necessity is recognized for constructing one for the United States that will not only meet the public welfare needs of this country, but will at the same time eliminate the gross mistakes that have been made in Europe. No such model plan has yet been proposed in the United States unless the above mentioned "tentative draft of a model State Health Insurance Bill" is in fact a precursor of such efforts. This tentative draft of a legislative bill is quite complete in its details except for the name of the state and other minor items.

In general, it may be said that the act covers all wage earners except farm laborers, personal and domestic servants or those employed in groups of

less than three, including persons whose incomes are \$3,000 per year or less. There is in addition provision for certain additional classifications under voluntary insurance. Specifically, the act includes aliens and minors, dependent wives, children and relatives living in the home of those insured. It defines employed persons as those who have been employed ten days within the last three calendar months, and provides that after leaving employment, one week insurance will be given for every five weeks employed.

The voluntary provision includes any person under sixty-five years of age and \$5,000 of income. These persons and their dependents are eligible upon physical examination, or without physical examination if the insured person has been employed one year in an employment which comes under the act. It is to be noted that voluntary insurance extends to persons whose incomes, and not salaries or wages, equals \$5,000 or less. The effect of these provisions is to include virtually all of the population in urban areas, whose family incomes are less than \$3,000 per year.

The act states that "wages" means every form of remuneration. It provides that employers shall contribute 1½ per cent of their payrolls, the employee 3 per cent of his payroll and the state 1½ per cent of the payrolls coming under the act. There is a further provision for those voluntarily coming under insurance for medical benefits only, to pay 3⅜ per cent of their total incomes, whether wages, salaries or other, and for the state to add one-third to this amount. The act provides that approximately three-quarters of the revenues shall be used for medical benefits and administrative costs arising from the provision of medical benefits. Since the administrative costs are usually thought to amount to approximately 10 per cent, the presumption is that 67½ per cent of the total revenues of the act will be available for medical care.

The act includes the care of general practitioners anywhere, providing preventive, diagnostic and therapeutic care for twenty-six weeks. There is a limit of ninety days in two years of care to those over sixty-five years of age. Provision is made for general and special hospital and nursing care upon prescription of a general practitioner for one hundred eleven days, twenty-one of which are free, and the balance provided at 15 per cent of cost. There is the same restriction for persons over sixty-five years of age. Prenatal and maternal care is provided in the home and hospital, specialists, labora-

tory and clinic and general dentistry, including exodontia, amalgam fillings and prophylaxis, all for a period not to exceed twelve weeks on the prescription of a general practitioner. Furthermore, the Commission may at its discretion extend these benefits to include drugs, medicines, appliances, home nursing, convalescent care, glasses, limbs, trusses, etc., restorative and special dentistry, and may for additional premiums extend these benefits still further. The Commission may also provide benefits at its discretion where premiums are in arrears. General provisions of the act provide that the Commission may build hospitals or other facilities at its discretion. Quality of the care is judged and determined by the Commission, sitting as a court of last appeal, and it also has the power to remove practitioners from the eligible list.

In addition to the medical benefits, cash benefits are provided in the amount of one-half of the normal full-time wage, not exceeding \$15.00 per week; plus 10 per cent of this wage, not exceeding \$3.00 per week for spouse; plus 5 per cent, not exceeding \$1.50 per week for each child up to \$3.00. Maternity benefits are the same as those for sickness. Thus a disabled employee with a family of five children might receive an income comparable to that while at work. The Commission may employ as many persons as it deems necessary to carry on its work, and the salaries of those persons employed are not determined by the act.

An analysis of the various provisions of this act gives the very significant primary general conclusion that neither proponents nor opponents have in hand nor could they obtain all of the facts necessary for a conclusion as to whether or not this act is financially sound or likely to yield the desired result in public welfare in the state of Washington. Statistics now in hand show that 83 per cent of urban families have incomes and 17 per cent have none; 81 per cent have incomes less than \$3,000 per year and would therefore come under the act, leaving 2 per cent of the income-producing population outside the act. The act makes no provision for the indigent. Persons coming under the Workmen's Compensation Act are not included.

Revenues that will accrue from the act are very uncertain as well as the exact extent of industrial insurance. It will be impossible to determine how many people have been employed for ten days during the previous three months. There is no way of knowing how many persons will avail themselves of the voluntary privilege. Statistical studies indi-

cate that the average size of the families for persons covered by the act will be greater than the general average for the total population, and that there are more families including five persons or more, than the total number of families of one person only. The family of five would pay the same as the family of one.

The same uncertainty exists regarding the cost of operation. The act would cover at least 80 per cent of the medical care now rendered in the state of Washington. European experience shows that there is always a great increase in requests for medical care under health insurance, and that new diseases such as neuroses and "Christmas fever" increase the cost. The cash benefit provisions of the act are extremely liberal. With the present uncertainty as to the incidence of disabling illness in the state of Washington, the amount of money required for this provision of the act is indeterminate. Furthermore, the total administrative cost is unknown, since the Commission has the power to build hospitals, employ as many persons as it sees fit, and engage in public health activities.

Public welfare is presumably the basic reason for proposing the establishment of health insurance. The proposal must be financially sound if it is to provide adequate scientific medical care to those who are insured. Should cash benefits, administrative costs and public health activities prove to be unexpectedly high and require economies in the cost of rendering medical care, the purpose of the act would be defeated and it would not be in the interest of public welfare. Should the act prove to be so expensive that general taxation would be doubled, this again would not be in the interest of public welfare.

The opinion has been stated concerning this act that no scheme ever proposed in any system of insurance in any country has been given such sweeping powers. No recognition is given to professional organizations. "The bill might with equal accuracy be designated a Bill for the Abolition of Private Medical Practice."

It is increasingly apparent that more complete and accurate information is needed on the subject of health insurance as applied locally. Every item included in a legislative act needs to be studied factually. The only organization concerned in such study in the state of Washington is the Foundation for Social Research in Medical Care in Tacoma, which for several months has been engaged in an intensive survey of economic conditions in Pierce

County, during which every family has been studied and a mass of invaluable information assembled, this providing a fair cross section of the state's population. The information upon which this editorial is based was taken from the files of this organization.

REDUCTION OF DRUG ADDICTION

The persistence and alleged increase in drug addiction is well known to federal and state officials and many physicians. It is stated that the United States is one of the largest consumers of opium and its derivatives of all the nations of the world. The amount introduced and consumed is problematical, owing to the large amounts said to be introduced by smugglers and distributed by peddlers to confirmed addicts. The recent widespread arrest of dealers in narcotics and seizure of huge amounts of smuggled drugs, said to run into hundreds of thousands of dollars in value, made a great impression through wide newspaper publicity. At the same time it is alleged that these spasmodic efforts make little impression on the illegal traffic and baneful consumption, owing to the outrageous profits secured by peddlers, supplemented by the voracious demands of the victims of addiction.

In order to reduce the number of addicts and to advance measures to effect their cure, the United States government has recently opened a large hospital in the east, constructed at a cost of several million dollars. During the past year there has been much discussion as to the site of a similar institution to be erected somewhere in the Northwest. Hitherto all efforts to decrease addiction have seemed of little avail, since various methods of prevention and treatment have been futile to check the spread of this vice. At this time the White Cross, with headquarters in San Francisco, whose existence aims to control and eventually eliminate drug addiction, advocates a plan which seems deserving of consideration. Based on the belief that the maintenance of drug addiction and its extension to new victims are based primarily on the profit from selling habit forming drugs, its plan contemplates eliminating the profit feature, thereby checking their sale. It is proposed that the federal and state authorities establish a monopoly of the sale of these drugs and dispense them at cost to the addict, thus cutting out the peddler and his baneful gains. It is claimed, for instance, while the peddler sells morphine to the victim at a dollar a grain, the same amount can be dispensed for ten cents, sufficient to cover the cost. If this plan were adopted and addicts thus supplied

with the amount needed for maintenance, the peddler would be eliminated along with the drug smuggler.

It is well known that drug addiction is practically an incurable disease. At the same time, if the addict is supplied with sufficient for his daily needs, he can usually be self-supporting and will not join the criminal class as so often happens as a result of his urge to obtain the needed drug. The increase of addiction would at the same time be checked, since it is established that the number of addicts is constantly increased through the activities of peddlers, whose profits are augmented by an increase of the number of victims. It is asserted that in due time the existing aggregation of addicts will terminate by death, and this proposed plan of supply will decrease the new victims so that in time it is hoped that the number of addicts may reach the vanishing point. Whether or not this contemplated plan may be considered visionary or too impractical, it is something concrete and advanced by earnest advocates who believe its accomplishment possible, if properly brought to the attention of state and federal officials and supported by laymen and physicians favoring its establishment.

NEW JOURNAL FEATURE

As mentioned in last month's issue, a new journal feature is instituted this month under the heading "State Departments." The purpose is to offer an opportunity for the president and other officials of each of our state associations to transmit to its members through the journal any information or announcements pertaining to their organizations. Its success will depend upon the material which is received from month to month, its continuance depending upon the necessary activity of the different state officials. It is hoped that this new department will prove to be satisfactory and beneficial to such an extent that its continuance may be assured.

NEW ADVERTISEMENTS

Attention of readers is called to the following new advertisements which appear in this issue: General Electric X-Ray Corporation (page 2) features portable x-ray unit. Abbott Laboratories (page 5) present ABD vitamin capsules. Philip Morris cigarettes are announced on page 35. Bilhuber-Knoll Corporation (page 10) offers bromural. Cook County Graduate School of Medicine (page 35) announces courses for training the general surgeon, internist and specialist. A change of program will be presented monthly.

MEDICAL NOTES

THE AMERICAN BOARD OF RADIOLOGY will hold a Pacific Coast meeting for the examination of applicants for certification of the Board in May, probably in connection with the annual meeting of California State Medical Association at Yosemite. Requirements for eligibility include membership in one of the national radiologic societies, three years experience in radiology with not less than 75 per cent of applicants time devoted to this subject and that applicant does not list himself in the American Medical Association directory, or elsewhere, as a specialist in some other branch of medicine.

OREGON

PORTLAND ACADEMY OF MEDICINE held its annual meeting at the University Club December 13. The following officers were elected for 1935: President, J. B. Bilderback; President-elect, T. M. Joyce; First Vice-President, A. J. Browning; Second Vice-President, Herbert Nichols; Secretary, H. J. Sears; Treasurer, A. G. Bettman.

ADDITION TO HOSPITAL. A twenty bed addition to St. Charles hospital in Bend is under construction. It is on the east end of the present structure and will double the present floor space, being 80x35 feet in area. The second floor will be devoted to the maternity and nursery departments.

WASHINGTON

PUBLIC HEALTH LEAGUE held a meeting in Seattle in December, when the following were elected as members of the Executive Committee: Frank J. Clancy of Seattle, chairman; Frederick G. Sprowl of Spokane, and James A. LaGasa of Tacoma. The other members of the committee are E. C. Leach of Arlington, J. Reid Morrison of Bellingham, J. W. Henderson of Longview, A. J. Bowles of Seattle and N. L. Thompson of Everett. C. F. Engels of Tacoma was elected president of the League at the annual meeting held in Spokane in September. Miss Helen Wilcox continues as executive secretary.

Chairman Frank Clancy says, "It is of the utmost importance to public health to defeat the onslaught that will be made against the basic science law in the coming legislative session by cultists who are strongly organized. Every physician can lend assistance in this campaign by interviewing his representatives and explaining the issues involved before the legislature convenes." As usual the League will have a representative in Olympia during the entire session.

A SPECIAL COURSE OF LECTURES was delivered at Seattle General Hospital, Seattle, December 26-29 by Dr. Paul J. Hanzlik, professor of pharmacology at Stanford University Medical School. He discussed digitalis, newer metabolic stimulants, hypnotics, antiseptic dyes, intravenous medication and antiasthmatic remedies. The popularity and success of the lectures were indicated by the large attendance at each of them.

DISCUSSION AS TO BOARD OF TRUSTEES. It has been proposed that Pierce County Hospital shall be placed under a board of six trustees in order to separate the institution from politics, in accordance with a legislative act empowering such management by institutions having more than 200 beds. Opponents of this measure cite a state law that

a county must limit a hospital to one bed for each 1000 population. Hence it is claimed that a hospital of more than 200 beds is illegal in this county.

HOSPITAL REMODELED. Aberdeen General Hospital has been remodeled at a cost of about \$1500, with improvements consisting of floors, division of wards into private rooms, repainting and redecorating.

THURSTON-MASON COUNTY MEDICAL SOCIETY held a joint meeting with Thurston-Mason Bar Association at Olympia, December 7. The speakers for the meeting were Dr. W. L. Bridgeford and H. C. Brodie, president of the Bar Association.

WOMAN'S AUXILIARY TO GRAYS HARBOR MEDICAL SOCIETY met November 21 at the home of Mrs. Kenneth Graham of Aberdeen. Eleven members were present from this city with visitors from other cities of the county.

MICHAEL J. O'CONNOR has located for practice at Spokane. After graduating from University of Washington he obtained his medical degree at Creighton University, following which he served an internship in a California hospital.

APPOINTED RESIDENT PHYSICIAN. E. A. Layton, who has served for a number of years as head of the Department of Health of Tacoma, has been appointed physician in charge of the state custodial school at Medical Lake.

ELECTED PRESIDENT. Warren E. Calvin of Seattle has been elected president of the Nassak Club, business men's service club of the Young Men's Christian Association.

THEODORE L. BORDSEN of Seattle has gone to Vienna, where he will devote eight months to special study.

EVAN ARDIEL, recently of Seattle, has located for practice at Washtucna, where he will carry on the practice of H. H. McLemore who has located in Spokane.

WEDDING. Theodore L. Bordsen and Miss Vi L. Cleverley of Seattle were married in that city December 8.

IDAHO

IDAHO HOSPITAL ASSOCIATION held a meeting in Boise early in December with representatives from a dozen hospitals in different cities of the state. A two-day meeting was devoted to discussions pertaining to Idaho hospital problems. Miss Emily Pine, superintendent of St. Luke's Hospital, Boise, was elected president of the organization.

HOSPITAL ANNEX COMPLETED. The new Ada County Hospital annex at Boise has been completed and has opened for business. It will accommodate fifty patients. It was constructed at a cost of \$20,000 which was shared by the federal government and the county.

H. J. HARTVIGSEN, who has formerly practiced at McCammon and Downey, has moved with his family to Pocatello. While practicing in the latter city, he still retains connection with his practice at Downey.

VALDA AND M. J. FUENDLING, who have practiced in Boise for five years, have moved to Twin Falls where they will be located for future practice.

R. L. RODWELL, who was formerly located at Edison, Neb., has moved to Nampa, where he will engage in future practice.

WEDDING. C. A. Terhune of Rupert and Miss Ruth Story of Burley were married in the latter city November 30

OBITUARIES

✓ **DR. WILLIAM KUYKENDALL** of Eugene, Ore., died December 7, after several months of poor health, aged 79 years. He was born in Wilbur, Ore., in 1855, his parents having crossed the plains a few years previously. After studying in the schools of his county, he graduated in medicine from Cooper Medical college, San Francisco, in 1878. He decided to locate for practice in Yakima, Wash., but en route stopped at Drain where he decided to begin practice. After ten years residence in this town, he located for practice in Eugene in 1889. In 1897, together with Dr. D. A. Paine, he founded the first hospital in the city which he operated until 1922. He served as mayor of the city in 1898. He was a member of the state senate for several sessions. For several years he served as an Oregon delegate in the House of Delegates of American Medical Association. His special hobby was raising of roses in which he became a specialist. While serving in the legislature his efforts were successful in passing the first high school law, establishing a link between the grade schools and the state university. He knew all the hardships of the pioneer doctor, having an extensive practice over a wide expanse of territory. Through his personal qualities, genial disposition and upright character he was a leader among the physicians of the state as well as being an influential and leading citizen.

✓ **DR. VICTOR J. CAPRON** of Friday Harbor, Wash., died November 16, at Virginia Mason Hospital, Seattle, after three weeks' illness, aged 67 years. He was born in Booneville, N. Y., in 1867. He obtained his medical degree from Jefferson Medical College in 1888. After serving as interne at St. Luke's Hospital, South Bethlehem, Pa., he moved to Port Townsend in 1890, where he was associated with Dr. H. C. Willison. In 1892 he went to Honolulu, where he was appointed government physician, remaining there for three years. In 1895 he located at Roche Harbor, being physician for the Lime Company, continuing in this capacity for the past thirty-nine years. His main practice was in Friday Harbor, to which Roche Harbor is adjacent. He served in many official capacities, displaying an interest in widely diversified affairs. At one time he served as a member of the state Board of Health. He was elected for four terms in the state legislature from San Juan County. He served three years as mayor of Friday Harbor. His practice extended over a wide area among the islands of this county, beginning in the days when transportation was by row boat or canoe and with very few constructed roads. His loss will be felt by a large circle of friends and patients.

DR. JOSEPH C. SMITH of Grants Pass, Ore., died December 9, following a major operation performed four weeks previously, aged 79 years. He was born in Washington, Iowa, in 1859. At the age of fifteen he located with his parents on a ranch near Corvallis. He received his medical degree from State University of Iowa in 1889. He located for practice at Grants Pass in 1904. He served as mayor of the city for two terms, 1907-8. In 1909 he was elected to the legislature where he served for two terms. In 1913 he was elected state senator, being twice reelected. While serving in the legislature he passed the examination and was admitted to the bar, although he never practiced law. He was said to know more about Oregon's politics

than any other person. For several years previous to his death he had served as county health officer. On account of his long residence in Grants Pass and his wide acquaintance his loss will be felt by a large circle of friends and acquaintances.

DR. CECIL C. KELLAM of Seattle, Wash., died December 7, after a brief illness, aged 69 years. He was born at Buckton, N. Y., in 1865. He obtained his medical degree from Willamette University at Salem, Ore., in 1889. He immediately located at Port Blakely, Wash., where he was the physician for the largest lumber mill in the world. For many years he was coroner for Kitsap County and also served as director on the Port Blakely school board. During the World War he served with the rank of major at Fort Ward. In recent years he divided his time between Port Blakely and Seattle.

DR. FRANK C. LEYTZE of Seattle, Wash., died November 30 as a result of a cerebral hemorrhage, occurring a year and a half previously, aged 59 years. He was born in Independence, Iowa, in 1875. He graduated from University of Iowa School of Pharmacy and received his medical degree from Jefferson Medical College in 1904. In 1905 he located in Sioux City, Iowa, where he practiced for eighteen years. In 1923 he moved to Seattle, where he practiced until his retirement in 1931. On account of his sympathetic nature and generous disposition he had established a practice which brought him many friends and admirers.

DR. HUGH D. LOGAN died from pneumonia at Portland, Ore., November 30, aged 26 years. He was born at LaGrande, Ore., in 1908. He graduated from University of Oregon in 1929 and received his medical degree from the University of Oregon in 1934. After serving as interne for a while at Multnomah County Hospital, he was acting in this capacity at Doernbacher Hospital at the time of his death.

DR. JOHN H. BROWER of Espanola, Wash., died while driving his car on the highway from a heart attack from which he had suffered for some time, aged 84 years. After the attack his car drove diagonally off the road for 150 feet, being observed by a man driving a car immediately behind him. He was born in 1850 and obtained his medical degree from Medical College of Ohio, Cincinnati, in 1877.

DR. JOHN W. HAMER of Middleton, Ida., died December 4 at the I. O. O. F. Home at Caldwell, aged 79 years. He was born at Hoytown, Pa., in 1855. He obtained his medical degree at Starling Medical College, Columbus, Ohio, in 1882. He located in Middleton in 1909. He retired from practice and has lived at the I. O. O. F. Home since April, 1933.

INTESTINAL PARASITES

If the eggs of such intestinal parasites as the roundworm have the good fortune to be deposited with manure in a kitchen garden where lettuces and other components of a salad are cultivated, the way to the new host's mouth is assured unless the produce is cooked or carefully washed. Dr. Claude Lillingston warns in the January Hygeia in the chapter of "Our Parasites" dealing with "Two Common Intestinal Worms." Infection may also follow the drinking of water from a contaminated source as well as eating of raw vegetables. Raw fruit and raw vegetables from questionable sources should be avoided or, if this is not possible, should be carefully washed.

REPORTS OF SOCIETY MEETINGS

OREGON

CENTRAL WILLAMETTE MEDICAL SOCIETY

Pres., A. H. Ross; Secty., C. E. Hunt

Central Willamette Medical Society held its regular monthly meeting at Eugene December 6. Banner Brooke of Portland gave an outstanding address on "Socialized Medicine and Sickness Insurance." Louis P. Gambee of Portland gave a paper on "The Management of Peritonitis."

The following officers were elected for the coming year: President, R. E. Herrin, Brownsville; Vice-President, M. S. Jones, Springfield; Secretary-Treasurer, J. C. Booth, Lebanon.

JACKSON COUNTY MEDICAL SOCIETY

Pres., A. F. W. Kresse; Secty., D. H. Findley

Jackson County Medical Society held its annual meeting at Hotel Holland, Medford, December 5. Preceding the meeting Dr. and Mrs. A. E. Dodson entertained the society at Dinner. Representatives of General Electric Company gave a demonstration of new electric apparatus in lieu of a paper. Case reports were discussed. Officers for the ensuing year were elected as follows: President, C. A. Haines of Medford; Vice-President, F. G. Thayer of Medford; Secretary-Treasurer, D. H. Findley of Medford; Board of Censors, W. H. Heckman of Medford.

LANE COUNTY MEDICAL SOCIETY

Pres., C. E. Hunt; Secty., E. D. Furrer

Lane County Medical Society held a meeting at Eugene, December 20, with a banquet at Osburn Hotel. A scientific paper was given by Otis F. Akin, orthopedic surgeon of Portland, on "Common Fractures and Their Accepted Treatment."

Officers for the ensuing year were elected as follows: President, Charles E. Hunt, Eugene; Vice-President, Gilson A. Ross, Eugene; Secretary-Treasurer, E. D. Furrer, Eugene; Censor, Harry G. Talbot, Eugene.

MULTNOMAH COUNTY MEDICAL SOCIETY

Pres., W. B. Holden; Secty., W. F. Hollenbeck

Multnomah County Medical Society held its annual meeting at Portland Hotel, December 19.

The following officers were elected for 1935: President, T. Tharaldsen; President-elect, Banner R. Brooke; Vice-President, Andrew J. Browning; Secretary, Willard F. Hollenbeck; Treasurer, Adalbert G. Bettman. The following Councilors were elected: D. C. Burkes, F. P. Johnson, S. H. Sheldon, H. T. Coffen, R. A. Payne, O. F. Akin, S. G. Henricke, who will act with the following holdovers: W. H. Buermann, H. E. Carruth, L. P. Gambee, T. W. Watts and I. M. Woolley.

WASHINGTON

CHELAN COUNTY MEDICAL SOCIETY

Pres., E. D. Sawyer; Secty., R. K. Pomeroy

The Chelan County Medical Society met with North Central Washington Dental Society at a dinner meeting at Cascadian Hotel, Wenatchee, December 12. The following program was presented: Geo. H. Anderson, Spokane, spoke on "Relation of Dental Infections to Systemic Disease." E. J. Barnett of Spokane spoke on "Dental Caries in Children."

CLALLAM COUNTY MEDICAL SOCIETY

Pres., D. E. McGillivray; Secty., W. H. Taylor

Clallam County Medical Society held a meeting at Port Angeles, December 12, following a banquet at Lee Hotel. Donald V. Trueblood of Seattle read the paper of the evening on "Lesions of the Skin."

The following officers were elected for the ensuing year: President, U. S. Ford of Forks; Vice-President, H. S. Hamilton of Port Angeles; Secretary, W. H. Taylor of Port Angeles.

COWLITZ COUNTY MEDICAL SOCIETY

Pres., D. H. Fritz; Secty., A. F. Birbeck

Cowlitz County Medical Society held a meeting at the Hotel Monticello, Longview, December 11, preceded by a dinner. The subject was a discussion of health problems. Among the speakers were Drs. J. L. Norris on "Prevention of Cancer," C. J. Sells on "Prevention of Tuberculosis," H. D. Fritz on "Prevention of Pneumonia," P. H. Henderson on "Prevention of Heart Disease" and J. F. Christensen on "Immunization as a Factor in Disease Prevention." Mrs. C. J. Sells discussed the problems of the Woman's Auxiliary. C. H. Lillie, Kelso superintendent of schools, led the discussion. There was also a consideration of the basic science law, value of the press on dissemination of health knowledge and the part played by civic organizations in a general health program.

KING COUNTY MEDICAL SOCIETY

Pres., H. G. Wright; Secty., F. H. Douglass

A regular meeting of King County Medical Society was held at the Auditorium, Medical Dental Building, Seattle, December 3, at 8:15 p.m., President Wright presiding. Minutes of November regular meeting were read and approved. Dr. Wright announced that pamphlets on sickness insurance, furnished by the Bureau of Economics, were available for distribution. Dr. Lamson announced the meeting of North Pacific Surgical Association for December 7 with Dr. Ravdin of Philadelphia as guest speaker.

Edward A. Nixon read a paper on "Observations on Treatments of Varicose Veins," based on more than two thousand injections in the varicose vein clinic of King County Hospital. Contraindications were enumerated which do not include pregnancy, pelvic tumors, cardiovascular renal disease or syphilis. The majority of veins will respond to injection treatment, preference being given to solutions of sodium morrhuate, quinine and urethane solutions. Ligation is an adjunct of value. Ulcers must be treated by suitable measures and applications. Complications were described. The paper was discussed by J. F. Ramsay.

I. B. Greene gave a report of the special committee, appointed at the meeting of November 27. A resolution was presented, directed to Nathan L. Thompson, president of the state medical association, requesting action by the Washington Association, American Medical Association and state and county components. After reviewing the effect that the national depression has had on the medical profession, the immense amount of charity work which it continually performs and the depressed financial condition of many of its members, the American Medical Association was requested, with assistance above mentioned, that the profession be organized so that it may discuss with authority and dignity medical problems. This was elaborated into a series of pro-

posals regarding treatment of indigents, low wage earners and the relations of the profession to proposed sickness insurance plans. Discussions followed by Drs. Weichbrodt, Wilhelmy, Leede, Lester Long, Gallagher, Ward, Seth, Underwood, C. L. Smith, Marshall, B. T. King, Carney, Corlett, Welsh and Williams.

Officers of the society were nominated for the ensuing year.

PIERCE COUNTY MEDICAL SOCIETY

Pres., V. E. Crowe; Secty., W. B. Penney

The regular meeting of Pierce County Medical Society was held in the Medical Arts Building, Tacoma, December 11, with V. E. Crowe, President, in the chair. Minutes of the previous meeting were read and approved.

A paper, "A Review of Modern Methods of Resuscitation," was given by Edgar F. Dodds. Dr. Dodds did a real service in calling to the attention of the members the present standing of different methods of resuscitation. He went into detail in regard to the difference between a person who was drowned and a person who had been poisoned with gas. He made a strong point in regard to the difference in treatment; that in carbon monoxide poisoning the inhalator was of most value, followed by transfusion, whereas in drowning, manual artificial respiration was the method of choice. The paper was discussed by Drs. Creswell, Dayton and Griffith.

E. R. Coffee, Health Director of the State of Washington, gave an outline of proposed changes in the health laws of the state. This presentation was warmly commended by H. J. Whitacre.

SNOHOMISH COUNTY MEDICAL SOCIETY

Pres., A. H. Gunderson; Secty., E. J. Van Buskirk

Snohomish County Medical Society held its annual banquet and meeting at Golf and Country Club on the evening of December 6, with President C. B. Jones as chairman. There was a discussion on the meeting of the state medical association in Everett next summer. H. J. Whitacre of Tacoma and H. G. Wright of Seattle discussed the duties and responsibilities of the physician in practice. E. R. Coffey, state director of health, emphasized the importance of cooperative support of the medical profession as an aid in the prevention of disease. Scott Henderson, Tacoma attorney, spoke on the U. S. constitution. Medical guests were present from Seattle, Tacoma, Bothell and Stanwood.

WALLA WALLA VALLEY MEDICAL SOCIETY

Pres., H. C. Cowan; Secty., G. R. Gowen

Walla Walla Valley Medical Society held its regular monthly dinner meeting at Grand Hotel, Walla Walla, December 12, President Harry Cowan presiding. Thirty-five physicians were present.

A committee was appointed to confer with the Merchants Association relative to credit extension. It was proposed that the Society hold a special meeting to work on the matter of state legislation.

The scientific program consisted of the following papers, all given by men from Spokane: "Cancer of the Large Bowel," by J. G. Matthews; "Precancerous Lesions of the Skin," by J. C. Hathaway; "Surgery of Undescended Testes," by R. E. Ahlquist.

WHATCOM COUNTY MEDICAL SOCIETY

Pres., D. V. Mounter; Secty., H. F. Wilkinson

Whatcom County Medical Society held a meeting in December at Bellingham.

The following officers were elected for the ensuing year: President, C. S. Hood, Ferndale; First Vice-President, Charles Teel, Bellingham; Second Vice-President, E. S. Sarvis, Sumas; Secretary, R. L. Taylor, Bellingham; Treasurer, L. A. Greenwood, Bellingham; Censor Board, W. D. Kirkpatrick, Bellingham; Delegate to State Meeting, J. R. Morrison, Bellingham; Alternate, G. F. Cook, Bellingham.

YAKIMA COUNTY MEDICAL SOCIETY

Pres., R. W. Shirey; Secty., W. L. Ross

The annual meeting of Yakima County Medical Society was held at the Commercial Hotel, Yakima, December 10. The meeting was preceded by a dinner. There were twenty-eight members and eight guests present.

C. L. Lyons of Spokane read a paper on "The Present Status of Thymic Hypertrophies." A. N. Codd of Spokane presented a paper on "Bronchoscopy and Esophagoscopy," illustrated by lantern slides, roentgen plates, and a film.

The annual election of officers was held with the following results: President, H. S. Atwood; Vice-President, F. J. A. Ditter; Secretary, T. J. Schott; Treasurer, F. W. Nagler, all of Yakima; Member of Board of Censors, J. H. Millhouse of Prosser.

IDAHO

NORTH IDAHO DISTRICT SOCIETY

Pres., R. T. Scott; Secty., M. J. McRae

North Idaho District Medical Society held a meeting at Lewiston, November 21, at Lewis-Clark Hotel. Twenty-seven physicians were present, representing cities in that part of the state as well as adjacent cities in Washington.

The program of the evening was given by C. M. Anderson of Spokane, who discussed "Treatment of Chronic Arthritis." J. W. Mounsey of Spokane presented a paper on "Common Anorectal Conditions, Their Diagnosis and Treatment." A general discussion followed each paper.

SOUTHWEST IDAHO DISTRICT SOCIETY

Pres., G. O. A. Kellogg; Secty., H. E. Dedman

Southwest Idaho District Medical Society held a meeting in Boise, December 15, attended by about fifty physicians. The chief speaker was Charles R. Scott of Twin Falls, president of Idaho State Medical Association. He discussed matters of interest to the medical profession of the state, especially those pertaining to economic and public relations. He emphasized the obligation of the profession in its guardianship of public health. As an example of public health deficiency he stated that there are more deaths per year from typhoid in Idaho than the total number of cases in other comparable states. Other speakers on the program were Robert Stier of Spokane who discussed allergic diseases and Paul Herron who discussed some phases of children's diseases.

The following officers were elected for the ensuing year: President, F. M. Cole of Caldwell, Vice-President, O. F. Swindell of Boise; Secretary-Treasurer, H. E. Dedman of Boise.

STATE DEPARTMENTS

OREGON

OREGON STATE MEDICAL SOCIETY

President, A. M. Webster; President-elect, G. A. Massey; Secretary, Blair Holcomb; Treasurer, Otis F. Akin; Editor, Oregon Section, A. G. Bettman.

A MESSAGE FROM THE PRESIDENT

Portland, Ore., Dec. 17, 1934.

To Members of Oregon State Medical Association:

With the establishment of an Oregon Department in NORTHWEST MEDICINE it seems fitting that the first issue should contain a message from the president to the members. The purpose of this department is to keep the membership informed as to the activities of our society to the end that increased solidarity will be reflected in enlarged accomplishment.

Our success in defeating the vicious so-called Healing Arts Amendment should impress on us the fact that our organization is possessed of social and political power that must not be allowed to languish, but must be cultivated and increased. With power comes responsibility which must be recognized and wisely met, the responsibility of giving to the public the information concerning the practice of medicine that the public desires and should have.

Personal health is a topic of universal interest. It is for us to tie in with this topic the related subjects that deeply affect the public welfare. Holding the vantage point of special knowledge in this field, it is our duty as well as our privilege to assume the position of leadership and enter upon a program of educational activities to make available to the public the information that is so essential to public health.

In this connection, the public is considering sickness insurance. A number of our social-minded members have been studying this question more or less sketchily for years. Now the time is at hand when the public is beginning to ask what about it and we will be expected to present the arguments pro and con and before long we will doubtless find it advisable to declare a definite policy concerning it.

The legislature will be in session by the time this issue reaches its readers and whatever propositions may be introduced, that have to do with the field of public health, will be considered by your Council, and the Public Policy Committee. It is the duty of the Council to instruct the committee as to the policy to be pursued. The loyal membership of our society will stand by the Council and its committee I am sure, for it is only by such team work that we succeeded in the recent election and can hope to succeed in the future. When it comes to determining a policy and putting it over, individualism has no place. It must be "all for one and one for all."

May I not urge every member to work hard to make the

Oregon State Medical Society the most efficient and progressive medical society in our country.

A. M. WEBSTER, *President.*

WOMAN'S AUXILIARY

President, Mrs. John G. Abele; Advisory Council: Drs. Charles E. Sears, Chairman; Ralph A. Fenton, H. L. Averill, Charles T. Sweeney; Chairman of Press and Publicity, Mrs. Raymond T. Kaupp.

The columns of NORTHWEST MEDICINE are open to our membership again this year, but with added generous enlarged space. This is a most gratifying compliment to our auxiliary. Let each of us get the habit of reading these columns. It is suggested that you have the doctor's office assistant remind the doctor to take home each monthly issue. Much will be gained in general information by regularly reading NORTHWEST MEDICINE, as the reports will cover timely news of auxiliary activities.

The Auxiliary to Oregon State Medical Society has had eight years of experience. Mrs. J. Earl Else founded our group and courageously continued her active interest until we were well established. Our organization stands on a firm foundation and is a living memorial to her name. Following Mrs. Else as president came Mrs. George A. Houck, Mrs. Edward Allen Pierce, Mrs. Joseph A. Pettit, Mrs. Wilson Johnston and Mrs. Charles T. Sweeney, each one advancing our purposes and ideals.

The program this year will cover our purposes, social, philanthropic and educational. Through our association with the strong lay organizations we can assist them in planning and supervising comprehensive health programs. These programs have almost endless influences.

Study groups in our auxiliaries will soon complete a course covering the "romance of medicine." This course has covered a study period of more than a year and included the great characters in medicine.

The Program Chairman, Mrs. Wilson Johnston, is now presenting for consideration an outline for the study of "History of Medicine in the Pacific Northwest." The full program may be obtained from Mrs. Johnston.

We are going toward our ninth birthday pledging to the members of Oregon State Medical Society the rededication of our time in acting as a helpmeet to them in meeting their problems and responsibilities in their great service to humanity.

The January Board meeting will be held in Portland, simultaneously with that of the State society, on January 9, 1935. In addition to the regular program, medical economics and sickness and health insurance will be considered. These subjects will be presented by members of our Advisory Council.

MRS. RAYMOND T. KAUPP,

Chairman of Press and Publicity.

WASHINGTON

WASHINGTON STATE MEDICAL ASSOCIATION

PRESIDENT'S MESSAGE

Everett, Wash., Dec. 24, 1934.

To members of the Association:

One of the first tasks, and it is a big one, that awaited me as the new President of the State Association was the appointment of committees provided for in the by-laws. I have been more than pleased at the prompt acceptance of chairmen and committeemen as they have been appointed and their expressed wish that they might be of service to the association.

It is my hope that the committee work this year may be of specific help to the various county societies, especially

the small ones. It is suggested that each committee prepare a program which can be furnished at any county society meeting when desired. I think each county society would be willing to defray the expense. If this were carried out year after year, each society would be benefited and it would serve in a small way as an extension course in that county. I have always felt that each county society should sponsor a three, four or five-day period of study each year.

Somewhere I have seen the suggestion, and I think it was in practice, that no doctor could retain his membership in his society if he did not attend his society meetings, the meetings of his state association when possible, extension lectures, clinics or some course of study as evidence of his

interest and progressiveness. I notice that the chiropractors have some such system.

The New Finance Committee is getting down to business and the result of their labor is bound to be beneficial to the association. Even now, my term of office has convinced me that, if the profession wants to do the work for themselves and for the public that it is clearly their duty, our state dues must be increased. With dues of only \$5.00 per year, \$2.00 of which goes for your journal, *NORTHWEST MEDICINE*, there is not money enough in the treasury to carry on constructive committee work. Individuals are willing to give freely of their time, but should they be asked to pay the necessary expense money to do work which benefits themselves no more than other members of the profession. We need *NORTHWEST MEDICINE* and it is worth its price; we need one good state meeting per year; we should maintain a state office of Secretary and Treasurer, but we also need our committee work. With the cults willing to tax themselves as much per month as we do ourselves per year, it is no wonder that they keep us on the defensive.

Speaking of defense, I wonder how many of the profession are studying the economics of our profession so as to present not only a strong defense against the attacks that are made upon us through press and over the radio, but to prepare an offense that will make these attacks against us futile. By being so informed, I believe we can educate the public by letter, by press and by radio so that no attack against us will be successful. To do this is going to require greater cohesion and cooperation than we have had in the past.

I wish all the county societies would send to the state Secretary, Dr. Curtis H. Thomson, Cobb Building, Seattle, and also to *NORTHWEST MEDICINE*, the names of their presidents and secretaries and the dates of their regular society meetings. It would be valuable if every county secretary would also send to *NORTHWEST MEDICINE* brief minutes of their society meetings and news items of interest.

To my state officers and committees, to all officers of county societies and their individual members, I wish to extend my hearty greetings for the New Year, and to reassure you that I am anxious to be of any service that I can be, in helping you to further the interests of our profession.

NATHAN L. THOMPSON, *President*.

WOMAN'S AUXILIARY

Everett, Wash., Dec. 17, 1934.

To Auxiliary Members:

The New Year's greetings to you! I find at this time most of our auxiliaries are well organized and are doing some splendid work. The interest and enthusiasm is growing, as it should, in a normal way which strengthens our organization. I feel each county auxiliary must realize that the auxiliary movement is growing in our state and in our country. It is a living active force in both State and Nation. It is with pride that each county may feel it is helping to add to that growth by its organization being as complete as it is possible. In fact, I feel if we can be just a little more efficient, doing well and consistently the things already planned, we will accomplish our purpose for this year.

It was my pleasure to attend a delightful membership tea given by Pierce County Auxiliary at the home of their

President, Mrs. D. H. Bell. This gave to me the fine spirit of the women in the auxiliary. Many other pleasant social functions by the different counties have been reported to me. My own county auxiliary has had three very enjoyable social evenings to which the doctors were invited. These, however, have not taken the place of our regular meetings, just extra. I was very glad for a visit from one of the members of the Walla Walla County Auxiliary. The report from our youngest auxiliary was most gratifying.

You will receive very soon a letter from your State Public Relations chairman, Mrs. Edwin L. Carlsen. I hope each auxiliary will enter the contest and that you will reply promptly to all requests and reports. King County Auxiliary is putting on this Essay Prize Contest, and we felt the idea worth passing on to our State Public Relations Chairman. I am grateful to my Advisory Council for the promptness in answering my letters. I trust they will not find me too much trouble.

It was indeed a delightful evening when the King County Auxiliary gathered at the dinner hour to honor Dr. Harriet Ravdin of Philadelphia. She was in Seattle with her husband, Dr. Isador Ravdin, who was guest speaker at the annual meeting of North Pacific Surgical Association. Your President had the honor of being the guest of Mrs. Otis F. Lamson, second vice-president of our National Auxiliary. After a short and interesting talk by Dr. Harriet Ravdin, the evening was devoted to bridge. Without an auxiliary the great number of doctors' wives would not have had the opportunity of meeting and hearing Dr. Ravdin.

I hope you will reply promptly to the calls of your State Chairman, that they may have their reports complete for the midyear Executive Board meeting. We are organized to assist the finest, most sacrificing, and most helpful group of men in the world. Let us be ready at the beginning of this New Year to do our part, to promote good cheer and friendliness among the doctors and their families, to be so informed that we may spread the health message, as the doctors would have us interpret it, so that we will not only be a credit to the profession, our doctor husbands, but they will feel we are indispensable. Our work cannot be measured by one county auxiliary but we must see it through the State and the National.

Never before has the doctor's wife had such a vision of his profession; never has she realized the opportunities that lie before her to help him spread the importance of scientific medicine to the community. Each county is doing this through Hygeia (health education), through the work of Program and Public Relations Committee, through its individual members and through many different channels. The auxiliary women are being of service to their communities both individually and collectively. The combined efforts are a splendid piece of work in our state.

Let us be cautious that we do not overstep, that we do only the things sanctioned by our County and State Advisory Councils. By so doing, I am certain we will prove to them they cannot do without the Woman's Auxiliary to Washington State Medical Association. Again, a happy New Year to you and my very best wishes for a successful year in auxiliary work.

MRS. NATHAN L. THOMPSON,
*President Woman's Auxiliary to Washington
State Medical Association.*

IDAHO

IDAHO STATE MEDICAL ASSOCIATION PRESIDENT'S ADDRESS TO MEMBERS

Twin Falls, Ida., Dec. 20, 1934.

Members of Idaho State Medical Association:

I have been making a series of visits to our component county societies, during this month, having addressed those

at Pocatello, Twin Falls, Boise, Coeur d'Alene, Sandpoint and Lewiston. The title of my address is "Medicine in Idaho, 1934-1935." The purpose has been to improve the *esprit de corps*, to increase the membership, to acquaint the members with the plans of the Association for the year and the service it is now rendering and plans to continue.

Special attention is called to our next annual meeting in Spokane, 1935, at Boise, featured by a graduate course of instruction.

Then stress was given to various matters concerning public relations and the economic situation of the profession, including explanation of our business with the Idaho Emergency Relief Administration. Before concluding, the deplorable inefficiency of Idaho's public health administration was set forth with the announcement of our plans to introduce a bill in the legislature meeting in January to revamp public health administration in the state and require a full time competent public health administrator.

The response by the doctors has been most gratifying. Each society has appointed a special membership committee pledged to bring every reputable doctor into the Association. Arrangements have been made that assure each member of the new legislature being interviewed in regard to our bill before he leaves home for the session. Resolutions have been adopted at each meeting, calling upon the Governor to improve his administration of public health. Stress was laid upon the twenty-six deaths from typhoid in Idaho during the first eleven months of 1934 as an example of the results to be expected from indifference and neglect.

At the meeting in Boise, Dec. 15, a resolution was passed requesting that a copy of my letter of November 7 be mailed to every medical doctor in Idaho. Extracts from this are included as follows:

It seems fitting that members of Idaho State Medical Association should have news from time to time concerning its activities in their behalf. I am, therefore, writing this letter to each member of the Association so that we may keep in touch with one another. It will also be sent to doctors whom I know over the state who have inadvertently neglected to maintain their membership in the Association in good standing. The affiliation of such is invited for their own benefit and for our consequent mutual advantage and pleasure. Do not overlook the fact that there should and can be much pleasure and even a lot of real

fun come out of one's association with the good fellows over the state.

Right now reserve the early part of September, 1935, to attend our next annual meeting at Boise. This meeting will be an innovation, whose complete nature will be revealed to you from time to time. It will be a postgraduate course of instruction of University scope and quality, intended to meet the needs of the general practitioners in Idaho. It is now about ten months before this meeting and perhaps it would be well in some way to advise your sensitized clientele that you will not be at home for obstetric engagements the first half of September next so that they may hasten or postpone their blessed events. Furthermore, make your own plans now so to hasten or postpone your "goin' fishin'" in 1935 that it will not conflict with your attendance at our postgraduate meeting.

You will be learning through your component societies of the activities of your Association in your behalf in regard to the distribution of I. E. R. A. funds to doctors for the care of their patients on or eligible to be on relief rolls. Do not fail to recognize the fact that this just and long overdue compensation can only be available when there is an adequately functioning medical organization, willing to enter into agreements with the designated administrators of our government and to assist in the execution of such agreements. It cannot be other than a disadvantage to any doctor not to belong to his State Medical Association at this time and under this set up. Be assured that the officers of your Association are doing their utmost for you in this matter and will continue to do so.

Please do not overlook or neglect your opportunity to protect your own welfare and the public health by interviewing the members elect of our State Legislature from your county in regard to our proposed legislation for the improvement of public health administration in Idaho. You should also fortify them against any measure that may be introduced for the benefit of cults and quackery.

CHARLES R. SCOTT, *President.*

BOOK REVIEWS

WISH-HUNTING IN THE UNCONSCIOUS. An Analysis of Psychoanalysis. By Milton Harrington, M.D., Psychiatrist, Institution for Male Defective Delinquents, Napanoch, N. Y. 189 pp. \$2.50. The Macmillan Co., New York, 1934.

The subtitle to this admirable book gives a much better clue to the contents and purpose than does the title. The theory and the technic of psychoanalysis are elucidated in the first two chapters, with copious quotations from Professor Freud. Then follows a discussion as to how the psychoanalyst proves his case and the author's opinion regarding the practical value of psychoanalysis, which method he apparently does not rate too highly. He concludes that psychoanalysis has as yet contributed nothing to our knowledge of mental hygiene; has not thus far proven of value in the treatment of the psychoses, but on the contrary, has been productive of harm. He believes, however, that it has apparently proven to be of some value in the treatment of the neuroses.

The author next turns his attention to the question of the popular success of psychoanalysis and the reader will be either amused or shocked (according to his personal viewpoint), by the statement that he is "convinced that one of the present day delusions which subsequent generations will view with astonishment is the delusion of psychoanalysis," also, that he believes, "a little longer and psychoanalysis

will be well on its way to oblivion to join the fads and follies of yester-year."

The final third of the volume presents an alternative to psychoanalysis, which the author terms mechanistic psychology, as opposed to the motivistic psychology of the psychoanalysts. Ridicule and sarcasm, so commonly resorted to by the antipsychos, are commendably conspicuous by their absence, the author presenting his arguments in the form of a sane, logical discussion.

The psychoanalyst reading this book will, to use the language of the author, ignore the arguments and discuss instead the motives to which, in his opinion, the author's "resistance" is due. To others, lay and professional, the book is heartily recommended.

PRICE.

PHYSICAL DIAGNOSIS. By Richard C. Cabot, M.D., Professor of Clinical Medicine Emeritus in Harvard University. Formerly Chief of the West Medical Service at the Massachusetts General Hospital. Eleventh Edition. Cloth, 540 pp. \$5.00. William Wood & Co., Baltimore, 1934.

One welcomes with pleasure this new edition which has grown steadily better and has increasingly gained professional recognition of its unique excellence, since its first appearance thirty years ago. It is also remarkable that obesity so common with age, even in books, has been avoided and the work is no fatter than fifteen years ago, through judicious omissions. Above all else it consists in the ab-

solute essentials of physical diagnosis—no more, no less. It contains only those methods, tests and statements of clinical facts which have proven absolutely reliable. Cabot has shunned all tempting unproven diagnostic novelties with a positive genius for the tried and true. Like Christian, he is always safe and sound.

The secret of Cabot's undeniable rightness is his reliance on the incontrovertible evidence of autopsy findings compared with clinical diagnosis, an unbeatable alliance. He has not only been the leading teacher of medical diagnosis in this country to members of the profession far and wide in his clinics, but is the great medical iconoclast of his time. He has shattered more cherished medical fallacies than any other of his generation; first, by showing the absurdity of the meticulous diagnoses made from examination of urinary sediments alone and by his dictum that color, specific gravity and amount were more important in determining renal damage, thus leading to the present concentration test for ascertaining renal function. Later he exploded the commonly accepted idea of mitral regurgitation being a separate entity and, as a necessary corollary, pointed out the customary error of making its diagnosis on the finding of a mitral systolic murmur without other corroborative evidence. Thus have thousands of lives been saved from imagined disability and misery.

Formerly Cabot's statistics showed that clinical diagnosis of chronic myocarditis (fibrous) was correct in only 22 per cent of cases as corrected by autopsy. Now with the electrocardiogram the diagnosis is much more accurate. The chapter on the electrocardiogram is one of the clearest and simplest in print. Its chief value is shown to lie in determining the state of the myocardium, especially the presence or absence of coronary sclerosis with resulting myocardial fibrosis; or the still more serious fresh, large infarct. This, with evidences of bundle block, includes the more important contributions of the electrocardiogram to clinical diagnosis. In this field, with the older aids to diagnosis, the practitioner is helpless.

Recent additions to this book include matter concerning coronary heart disease, measurement of cardiac reserve, pulmonary heart disease, the heart in myxedema, new matter on tuberculosis, cancer of the lungs and bronchi. Also "heretical views" on pulmonary emphysema, pneumoconiosis, asthmatic breathing, stenosis of the bronchi and trachea, and the heart in diphtheria.

WINSLOW.

BENIGN, ENCAPSULATED TUMORS IN THE LATERAL VENTRICLES OF THE BRAIN. Diagnosis and Treatment. By Walter E. Dandy, M.D., Adjunct Professor of Surgery, Johns Hopkins University. 189 pp. \$4.50. The Williams & Wilkins Co., Baltimore, 1934.

This volume is designed primarily for neurosurgeons. The first chapter is devoted to an extensive review of the cases reported in the literature, and then follows a series of fifteen cases seen in the Johns Hopkins Clinic by the author. The case histories are rather briefly given, however, all the salient points being noted. The operative procedures are well illustrated and the few cases that came to autopsy are also well presented. Following the presentation of this series of cases, covering as it does the past sixteen years, the diagnostic syndrome of tumor of the lateral ventricle is considered.

The author does not believe there is any positive syn-

drome. The symptoms which are characteristic of lesions in the ventricles as a rule are those associated with increase of intracranial pressure from any cause and, therefore, are not diagnostic. The neurologic signs present in practically all of these cases are either so indicative of general increased intracranial pressure or entirely absent that it is impossible to use them as diagnostic in any sense of the word. On the other hand, ventriculography seems to be diagnostic. Practically all of the cases presented, since the use of air in a diagnostic way, beautifully illustrate this point. The ventriculograms are well taken and the artist has outlined the location of the tumor so that one can easily interpret them. The last few chapters are devoted to the signs and symptoms as they have appeared in this series of cases.

In all, it is a well written book. It presents a subject in neurosurgery that, while not common, does confront the neurosurgeon from time to time. The author has outlined in a very careful and accurate manner just the steps necessary to make the diagnosis. He has shown how, in his skillful hands at least, a surgical approach can be made with the successful removal of these tumors.

There have been at least two reviews of this book by neurosurgeons who apparently do not approve of it as a scientific composition. When one reads the book carefully and with an unprejudiced mind, one is convinced that the reviews were not at all honest to the author who has given his own interpretation of his own cases. Any author has a right to do that. He has not in any sense of the word tried to mislead the reader, nor has he given any basis for the statement that he did not spend a great deal of time in presenting this subject. It is a book that should be carefully studied, and it should be in the hands of all neurosurgeons. The general surgeon who may do an occasional neurosurgic case probably will not wish to attempt a case of this magnitude. Neurologists, on the other hand, who are called upon frequently to make a differential diagnosis, will find in the volume many important points which would suggest at least the necessity of having ventriculograms in a certain group of rather obscure cases.

SWIFT.

DEFINITE DIAGNOSIS IN GENERAL PRACTICE. By W. L. Kitchens, M.D. With a Foreword by John H. Musser, B.S., M.D., F.A.C.P., Professor of Medicine, in The Tulane University of Louisiana School of Medicine. Large Octavo of 1000 pages. Cloth, \$10.00 net. W. B. Saunders Company, 1934, Philadelphia and London.

The purpose of this book is to provide a source of quick reference, simplify the making of a differential diagnosis and to offer an effective means of applying the selective methods of diagnosis. The author has selected 407 diseases of most common occurrence and 506 symptoms of definite diagnostic significance. A page in Part I is devoted to each symptom, beneath which are arranged the diseases in which it is found. Each of these has a number, corresponding to the page in Part II which is devoted to this disease. Under each disease are listed the symptoms which it commonly displays. One seeking a diagnosis lists the symptoms noted in his patient, referring to the section on symptoms. The numbers are placed in order, representing the diseases in which it occurs. Then each of these is referred to the section on diseases of Part II, from which each disease is listed by number containing the symptoms. When these numbers have all been recorded, one has a graphic demonstration of the predominating symptoms that

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establishes the diagnosis in the given case. The author states that the system may seem complicated at first, but when one has mastered the details he is able quickly to establish a differential and selective diagnosis from the symptoms which he has collected from the case being studied. One recognizes at a glance that a unique system is hereby presented, seeming at first glance quite complicated, but its possibilities are evident as a distinctive aid to the practitioner.

GYNECOLOGY. By Brooke M. Anspach, M.D., Professor of Gynecology, Jefferson Medical College. Fifth Edition. Reillustrated, Reset, and Completely Revised by the Author. With the Assistance of Philip F. Williams, M.D., Assistant Professor of Obstetrics, School of Medicine, University of Pennsylvania, and Lewis C. Scheffey, M.D., Assistant Professor of Gynecology, Jefferson Medical College. 679 Illustrations of which 10 are in colors. 832 pp. \$9.00. J. B. Lippincott Co., Philadelphia, London, Montreal, 1934.

The appearance of the fifth edition of this work indicates its popularity. All the newer diagnostic methods both from the clinical and laboratory angles are strongly emphasized. The plan of radium has been indicated. The use of the electrocautery is included. The chapter on backache is well written and has many important features. Ectopic pregnancy is well covered and many new symptoms and diagnostic features are explained. There are many suggestions as to office and bedside treatments and much thought is given to the endocrine system. The book is very well written throughout. The illustrations are profuse, beautiful and splendidly amplify the text. The gynecologist will find this volume a very valuable assistant in diagnosis and operative technic.

BORIES.

THE HEART VISIBLE. A Clinical Study in Cardiovascular Roentgenology in Health and Disease, by J. Polevski, M.D., Attending Physician and Cardiologist, Newark Beth Israel Hospital. 207 pp. \$5.00. F. A. Davis Company, Philadelphia, 1934.

The economic status of Austria following the war necessitated a pitiable curtailment of funds for scientific purposes. Owing to the prohibitive expense, many clinicians and roentgenologists in Vienna were unable to purchase numerous films, with the result that such men as Hugo, Roesler and Polevski developed fluoroscopy of the cardiovascular system to an amazing degree of efficiency. This book is an indirect result of that financial depression, and may be regarded as a silver lining to that dark cloud. The author shows us far more by his intensive study of fluoroscopy of the heart and great vessels, than can be obtained from the roentgenogram. The 122 illustrations make this book a most valuable contribution to the modern study of heart diseases. Many of the illustrations are new and will be much appreciated by both internists and roentgenologists.

VON PHUL.

THE LUMMI INDIANS OF NORTHWEST WASHINGTON. By Bernhard J. Stern. 127 pp. \$2.00. Columbia University Press, New York, 1934.

Any one familiar with the early history of the Northwest cannot fail to have an interest in the numerous tribes of Indians, among whom the Lummi tribe has preserved an unusual degree of culture in spite of the disruptive encroachment of the whites. The author presents the results of an intensive study of these Indians which includes ma-

terial of interest from a medical standpoint. To protect her unborn infant the mother denies herself many foods. Relatives can tell whether it will be a boy or girl by the way the expectant mother walks, stepping forward with the left foot first indicating it will be a girl. The place of childbirth is preferably beside a gooseberry bush or on the beach. Rules of rearing children are explained. The parents avoided coddling and demanded rigid obedience. The boys must bathe every morning in the icy waters of Puget Sound. This and other procedures tend to toughen him for life's experiences. Many interesting facts are presented regarding tribal culture. The descriptions of the medicine men and his procedures are as grotesque as usually are found among the aborigines. If one is interested in ethnology, he will find this book attractive.

BIRTH CONTROL. Its Use and Misuse. By Dorothy Dunbar Bromley. 304 pp. \$2.50. Harper & Brothers, New York and London, 1934.

The subject of birth control has been featured so much in recent years in professional and lay publications that the general public has become alive to its significance and has sought suitable guidance. This book is offered as a response to that demand. The author discusses the subject in an effective and sensible manner equally instructive to the physician and the layman. Due space is given to the "safe period," popularized by Ogino and Knaus, which has been endorsed by the Roman Catholic church as acceptable to the hierarchy and recommended for practice. The author quotes numerous writers who testify to the fallibility of this procedure. While it is asserted that the period from the eleventh to the nineteenth days is fool-proof, many instances to the contrary are cited. Various contraceptive methods are discussed and their fallacies pointed out. The author believes that the safest method is the use of the rubber pessary in connection with a spermicidal jelly. The attitude of those doctors who disclaim any advice or interest in this subject is criticized. The author considers it vital that every physician should familiarize himself with modern methods and be in a position to offer intelligent advice when this is sought.

TO REMIND. A Biological Essay. By Hardy, Sir William Bate, M.A. (Cantab.); F.R.S.; Hon. D.Sc. (Oxon); Hon. LL.D. (Aberdeen, Edinburgh, Birmingham); Fellow of Gonville & Caius College, etc., 45 pp. \$1.00. The Williams & Wilkins Company, Baltimore, 1934.

This booklet presents a lecture, one of a series delivered by the author under the Abraham Flexner Lectureship of Vanderbilt University. In it the author reviews from a modern standpoint some older contributions of the nature of life processes which he felt were in danger of being forgotten. Beginning with theories of Dujardin, the famous biologist, he discusses, with these as a basis, the character of protoplasm and the ultimate principles of life. The second chapter emphasizes the importance of asymmetry as a factor in biochemical studies. Its significance in living matter and the character of plant and life products is discussed. Although the casual reader may not be able to digest all the facts herein presented, he will find something of interest in reading it.

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No. 2

AN OUTBREAK OF DYSENTERY CAUSED BY THE SONNE TYPE BACILLUS*

HARRY J. SEARS, Ph.D.
JOSEPH B. BILDERBACK, M.D.
CARL G. ASHLEY, M.D.
MARTHA ROHNER, B.A.

PORTLAND, ORE.

The term dysentery is derived from two Greek words, difficult and intestine. The name is a generic one and is used to describe a disease of the intestines, particularly of the colon. The disease is characterized by abdominal discomfort, pain, tenesmus and diarrhea. The stools may be very loose and watery and frequently contain considerable mucus and blood.

In dysentery there are true inflammatory lesions of the intestines in contradistinction to the non-specific diarrhea, in which the injury to the mucous membrane is very superficial. Undoubtedly many epidemics of diarrhea are caused by the strains of dysentery bacilli, but pass without specific diagnosis because bacteriologic investigation is not made, due either to the mildness of the cases or to the fact that a competent bacteriologist is not at hand.

There are several types of dysentery bacilli found in the United States, all very similar morphologically, but differing culturally and serologically. There is also a marked difference in the toxicity produced. Nearly all the cases reported to date in America are caused by the Flexner bacillus, 80 to

90 per cent of all dysentery cases being due to this type. The mortality rate in this type is high in children.

The Sonne type organism is very similar to the other types. The disease produced is generally mild and no doubt often missed and, therefore, of importance to differentiate.

A REVIEW OF THE DEVELOPMENT OF OUR KNOWLEDGE OF THE SONNE DYSENTERY ORGANISM (Shigella paradysenteriae, Sonne)

In 1914, Sonne,¹ of Denmark, described a new member of the dysentery group of bacilli. He proved this organism to be specific, and different from any dysentery organism previously described. He further found that this organism was responsible for the majority of cases of dysentery in the material studied by him in Copenhagen. Prior to this time, Duval and Shorer² had described an organism similar to this occurring in New York City. Their organism was probably identical with Sonne's bacillus, but its etiologic relationship to dysentery was not established. In 1916, d'Herelle³ isolated the same organism in France, not knowing of Sonne's previous study.

Subsequent to this, outbreaks have been reported in Norway, Australia, England, Scotland, Japan, Canada, France, the United States, Germany, South Africa and Holland. In 1919, Thjotta⁴ reported a

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4. Thjotta, T.: Bacteriology of Dysentery in Norway. J. Bacteriol., 4:335, July, 1919.

* From the Departments of Bacteriology and Pediatrics of the University of Oregon Medical School.

* Read before a meeting of University of Oregon Medical School Alumni Association, Portland, Ore., March 12, 1934.

study of a Sonne type dysentery in Norway. Mita⁵ (1921) described an organism similar to the Sonne type, occurring in Japan. Patterson and Williams⁶ (1922) described the occurrence of an outbreak of summer diarrhea in Southern Australia. Cultural and serologic tests proved the causative organism to be of the Sonne type. The first cases reported in England were by Bamforth⁷ in 1923. Although Bamforth did not recognize the relationship at the time, subsequent reports identified the organism he found as the Sonne bacillus.

Since 1924, there have been a number of reports of outbreaks of Sonne dysentery in England and Scotland. J. Smith,⁸ Fraser, Kinlock and Smith,⁹ Channon,¹⁰ Nabarro,¹¹ Richards,¹² Wiseman,¹³ Fyfe,¹⁴ Evans,¹⁵ Clayton and Hunter,¹⁶ Clayton and Warren,¹⁷ Fraser and Smith,¹⁸ Mansell,¹⁹ Hay,²⁰ R. E. Smith,²¹ Cann and DeNovasquez,²² MacGill and Downie,²³ Pickles,²⁴ Loudon²⁵ all report cases. In Canada, Johnston and Brown^{26, 27} (1931) isolated

a number of strains of the Sonne bacillus from cases diagnosed either as intestinal intoxication or infectious diarrhea. Rhein²⁸ described an organism identical with the Sonne type in France. Weigmann²⁹ (1933) presented a series of cases of Sonne dysentery in an outbreak in Schleswig-Holstein in 1932.

In the United States, reports of Sonne dysentery have been quite few. Gilbert and Coleman³⁰ (1929) reported twelve cases in New York State. In 1930-31, Nelson,^{31, 32} of Boston, reported the occurrence of thirty cases. At the same time, Nelson identified the organism which Castellani³³ of New Orleans called metadysentery as a Sonne type organism. Koser, Reiter, Bortniker and Swingle³⁴ (1930) made a study of the Sonne type dysentery bacillus in Chicago. This was a nonclinical study. Leahy³⁵ reported on thirty-one strains isolated during an epidemic of dysentery in Rochester, New York. Silverman and Harris³⁶ (1932), in a study of types of dysentery occurring in the territory around New Orleans, found five cases of the Sonne type. They called the organism the bacillus of Duval, but stated that it is identical with the Sonne organism. Welch and Mickle³⁷ (1932) presented nine cases of Sonne type dysentery in Hartford, Connecticut. Seven of these were in the same family. There was one death. Soule and Heyman³⁸ (1933) reported seventeen cases of the Sonne type in a study of dysentery in Michigan. They classified their organism as Type II, but identified it with the Sonne and Castellani bacilli. Their cases were all described as severe, but there were no fatalities.

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CLINICAL MANIFESTATIONS

Dysentery of the Sonne type usually, although not always, follows a mild course. In the more typical mild cases the onset is sudden, with malaise, diarrhea and vomiting. Vomiting occurs in slightly more than half of the cases. Often the diarrhea may be delayed for several days. This has led to errors in diagnosis. In the report by Leahy,³⁵ nearly 50 per cent of the cases were originally diagnosed as some other condition, such as encephalitis, appendicitis and pneumonia. The stools become watery and greenish and usually contain mucus. Blood occurs in about half of the cases at some time, but is present in only one-third of the cases in more than barely noticeable amounts. The average duration of symptoms in the mild cases is forty-eight hours, after which time improvement is quite rapid. A few cases of so-called chronic type have been reported, in which diarrhea may persist for several months. In the average case, dehydration and intoxication are not a feature. Abdominal pain is not a prevalent symptom. Fraser, Kinlock and Smith⁹ report the frequent occurrence of mild upper respiratory symptoms before the onset of the diarrhea.

Recurrences are not known to be very common, but several investigators feel that an individual may harbor the organism for some time. Channon,¹⁰ in England, reported the case of a man having a sudden attack of dysentery which was proved to be of the Sonne type. This attack occurred in 1925. He gave a history of having had an attack of dysentery in Egypt in 1917, which lasted six weeks. Channon felt that there was probably a relation between the two attacks. MacGill and Downie²³ report five cases in which positive stool cultures were obtained 23, 24, 27 and 35 days and 18 weeks respectively following the initial attack.

Occasionally the course is quite severe and may end in death. Fraser, Kinlock and Smith⁹ very aptly described the severe forms. They said:

"There is a notable variation in the degree of severity of the dysenteric symptoms in the different cases of Sonne dysentery. In exceptional cases, the symptoms are of urgent description; and two varieties of these urgent forms can be recognized. In one type the symptoms simulate those of an acute Flexner dysentery with sudden onset of illness, diarrhea and colic, and rapid appearance of blood and mucus in the stools. In the second variety of the urgent form of the disease the symptoms simulate those of Salmonella infections, or the choleraic form of dysentery, with sudden onset, epigastric pain, vomiting, diarrhea with green stools containing mucus but no blood, and rapid prostration."

The cases reported by Patterson and Williams⁶ in Australia were severe, with several deaths. Wiseman¹⁵ of Scotland reported several deaths. In Eng-

land, Evans¹⁵ and Hunter and Clayton¹⁶ each reported one death. Clayton and Warren¹⁷ report ten deaths in a subsequent series in England. Johnston and Brown²⁶ of Canada report eight deaths. In the United States, Welch and Mickle of Hartford³⁷ report one death, and Nelson³² of Boston two deaths. Only one of the latter was directly attributable to the dysentery. Death appears to be due to extreme toxemia rather than to the local condition of the bowel.

Autopsy findings report most frequently a marked engorgement of the lower ileum and large intestine, with relative freedom from pathology of the upper bowel. Peyer's patches are swollen and red. There are occasional areas of hemorrhage in the bowel wall, and small areas of denudation of the mucosa. In one case there was grayish membrane throughout the lower bowel, and a rather diffuse degeneration and ulceration of the superficial layers of mucosa.

DIAGNOSIS

Diagnosis is made on the basis of specific agglutination reactions with patients' serums and by means of stool cultures. Smith²¹ feels that the vomitus should be tested. Although no results are presented of such a study, he states that, when vomiting is the most pronounced feature, diarrhea is relatively less so.

Complications from this form of dysentery are relatively uncommon. Clayton and Warren¹⁷ in their severe epidemic with ten deaths reported the development of nephritis, bronchopneumonia and polyarthritis in three cases.

There is considerable variation in the age incidence in the various reports. Sonne type dysentery is far more common in children than in adults though it is rarely seen under one year of age. Most of the average ages given vary between four and seven years.

EPIDEMIOLOGIC FACTORS

Little is definitely stated in the literature in regard to the incubation period of Sonne type dysentery. Johnston and Brown²⁷ cite the case of a four-year-old boy who acquired the infection from the patient in the next bed. The symptoms began four days after this contact. MacGill and Downie²³ state that the average incubation period in their cases was one to three days, although they reported one case in which the incubation period was fourteen days.

From a study of the reported cases, there can be little doubt that the most common method of transference of infection is by direct contact with an infected individual. Reports previously cited (Mac-

Gill and Downie²³) of the length of time following initial infection when positive cultures can be obtained in a given individual indicate further evidence of the possibility of human carriers. There is often more than one case reported in a single family and it is common to isolate the Sonne organism from several members of the same family, even though symptoms are not present in all of them. As many as nine individuals in one family have had the disease, extending over a period of several weeks.

Fyfe¹⁴ described an epidemic in St. Andrews, Scotland, in which one hundred and fifty persons were affected. There seemed to be evidence that the etiologic factor was milk-borne, since the members of the family of a dairyman, from whom twenty-three households received their milk supply directly and twenty indirectly, were ill with a similar disorder. The dairyman's wife was the first to contract the disease; she had been feeding the calves which were said to have white diarrhea. Thirty strains were isolated from sixty-six persons examined, including four from the dairyman's family. There were no fatalities.

Clayton and Hunter¹⁶ reported two cases with death. The father of one of the boys had recently returned from Glasgow, and it is assumed that he infected the children since he was subsequently found to be harboring the organism. Cann and De Novasquez²² report 100 cases occurring in the nursing staff of Guy's Hospital in London. No patients at any time contracted the disease. The nurses' meals were prepared in separate kitchens. It was thought that probably an infected kitchen helper was responsible.

It is generally agreed that the Sonne type of dysentery usually manifests itself in epidemic form, although some investigators in Scotland feel that it is endemic there. The fact that cases are found throughout the year would, according to Johnston and Brown,²⁷ tend to indicate an endemic nature. Sporadic cases have been reported.

With these facts in mind, it would seem that many cases are overlooked, and the Sonne organism is far more prevalent than is generally supposed. The mildness of the average attack, together with the widely separated localities where cases have been reported tend to support this belief. As has been shown, there are many individuals who may be carrying the organism without ever having had any symptoms. Because of the fact that there have been so few cases reported in the United States to date, and because it is felt that there must be many more cases than we have reason to suspect at

the present time, the outbreak of Sonne type dysentery at Portland is reported as the first known in the western part of the United States.

OUTBREAK AT PORTLAND

From January 20 to May 12, 1933, there were eighteen cases of dysentery treated in the Doernbecher Memorial Hospital for Children. Of these, stool cultures were positive in seven cases for the Sonne type of dysentery bacillus. Agglutination with the patient's serum was positive in eight cases. There was a total of ten cases, in which either agglutination or stool culture was positive for Sonne dysentery. Of the remaining eight cases, six at the time of onset of their dysenteric symptoms were already in the hospital for other conditions. They were in contact with known cases in the hospital, and when they developed diarrhea, we felt that there was a definite connection with the outbreak. The remaining two cases entered the hospital with complaint of enteritis, and contact was also established in the hospital. It would be difficult to prove whether or not these were actual cases of Sonne type dysentery.

Of the ten proven cases, two entered the hospital with enteritis, so that the infection was acquired outside of the hospital. One patient, a mastoid case, was discharged from the hospital March 17. She began to have loose stools at home on March 21 and returned to the hospital March 26. The attack of dysentery lasted until March 28. She was not on the same floor of the hospital as the other cases, and it was felt that her infection was independent of the outbreak within the hospital. This leaves seven cases acquired in the hospital.

The evidence seems to point to the following case as the source of all the infections acquired in the hospital.

S. W., age 11 years, entered Doernbecher Hospital, January 20, 1933. He had a temperature of 104.4 degrees, was cyanotic and extremely sick. Diagnosis of influenzal bronchopneumonia was made, and he was immediately placed in an oxygen tent. Due to the extremely severe pulmonary condition, no particular note was made of the fact that he was having frequent watery stools, since often such a condition accompanies respiratory infections.

On January 24, a note was specifically made in the daily report that he was having many watery and mucous stools. However, his general condition improved somewhat and he was moved to a ward, where he remained in an oxygen tent until January 30, but was not isolated. His loose stools lasted until January 28. Following the initial attack he had two more, one from February 20 to 26 when a positive stool culture for Sonne dysentery was obtained on February 24. The third attack occurred from April 1 to 3. The stool culture was still positive on April 11. He was readmitted August 14 for another condition. At this time his stool culture was negative, but agglutination was positive for Sonne type dysentery.

Patient	Age	Sex	Diagnosis on Admission	Time in Hospital	Time of Dysentery Attacks	Stool Cultures	Agglutination with Pt's Serum	Infection Acquired in Hospital
S. W.	11	M	Pneumonia	Jan. 20-Apr. 4	Jan. 20-28 Feb. 20-26 Apr. 1-3	Pos. 2-24 Pos. 4-11 Neg. 8-14	Positive	No
J. C.	3½	F	Burns Mastoid	Feb. 4-May 18	Feb. 14-17 Feb. 28-Mar. 6	Neg. 3-28		Yes
W. O.	4	M	Empyema	Feb. 13-May 3	Feb. 27-Mar. 2		Positive	Yes
M. T.	13	F	Poliomyelitis	Feb. 2-Mar. 21	Feb. 28-Mar. 5			Yes
H. M.	4	M	Enteritis	Mar. 2-15	Feb. 28-Mar. 15	Neg. 4-5	Positive	Yes
M. H.	13	M	Tuberculosis	Feb. 21-Mar. 13	Mar. 3-6			Yes
R. A.	6	M	Pneumonia Enteritis	Mar. 1-8	Mar. 1-8	Pos. 5-19		No
R. P.	12	M	Fracture	Feb. 20-Mar. 20	Mar. 4-12	Pos. 3-9 Neg. 3-17	Positive	Yes
D. R.	10	F	Enteritis	Feb. 23-Mar. 17	Mar. 10-14			Yes
D. C.	3½	M	Mastoid	Mar. 2-Apr. 1	Mar. 13-28	Pos. 3-15 Neg. 3-31	Positive	Yes
C. J.	2	M	Mastoid	Feb. 15-Mar. 31	Mar. 13-25	Positive	Positive	Yes
D. P.	9	F	Lues-Sickle cell anemia	Feb. 22-May 5	Mar. 17-19	Neg. 3-17	Negative	Yes
W. C.	12	M	Pneumonia Enteritis	Mar. 21-28	Mar. 18-22	Neg. 3-23	Negative	No
S. R.	7	M	Osteomyelitis	Feb. 23-Jun. 29	Mar. 21-31	Neg. 3-31		Yes
L. B.	6	F	Mastoid	Mar. 7-17 Mar. 26-29	Mar. 21-28	Neg. 3-28	Positive	No
R. D.	3	M	Mastoid	Mar. 3-31	Mar. 23-31	Pos. 3-24 Neg. 3-31	Positive	Yes
V. M.	4	M	Hernia	Mar. 26-Apr. 5	Apr. 2-5			Yes
M. B.	5	F	Burns	Mar. 25-Jun. 7	Apr. 2-17 May 9-12	Pos. 4-7 Pos. 5-11		Yes

Table 1. Data concerning the outbreak of Sonne dysentery at Portland.

Table 1 shows the significant epidemiologic data on all of the patients. The average age of the patients was 6.5 years, the youngest was 3, the oldest, 12 years. The average duration of attacks of dysentery was 7.7 days. All of the hospital cases, except the one previously mentioned, were on the same floor. Of these, four cases were in the same ward as the original case (S. W.). As soon as a definite diagnosis was made on the original case, all subsequent cases were isolated.

Although the epidemic lasted approximately four months, the main part of the attack was concentrated in the last two weeks of March, six of the cases having their attacks during this period. The first patient (S. W.) had three attacks in the hospital; two others, J. C. and M. B., had two attacks each. The remaining cases had only one attack as far as is known. Of the few cases who returned to the Out-patient Clinic following discharge from the hospital, no data concerning recurrence of the attacks are noted.

Since this outbreak at the hospital, one other case of Sonne type dysentery was admitted to Doernbecher Hospital.

D. S., age 8, male, entered the hospital on November 23,

1933. He complained of vomiting, pain in the abdomen and diarrhea. He had no fever. The attack lasted from November 22, until December 4. Blood was reported in the stool on two occasions. The course was mild and easily controlled with barley water and a skimmed milk diet for three days, and a gradual return to normal feeding. On November 23, a positive stool culture for Sonne dysentery was obtained. On November 27, agglutination of a stock Sonne organism by the patient's serum was positive. No further attacks have been noted.

The wide separation in time between this case and the ones previously reported seems to indicate that the Sonne type of dysentery may be endemic in Portland.

Regarding the sources of infection, we have little definite data, except that we are sure of the contacts and cases within the hospital. Two cases (W. O. and M. H.), exposed to S. W. in the same ward, began to have loose stools five days after exposure. Two cases (R. D. and V. M.), presumably acquired the infection from S. R., since they were in the same ward. R. D. began to have symptoms two days after exposure; V. M. had symptoms six days after exposure. The remaining cases do not reveal the actual method by which their infection was acquired. It may have been through the nurses or doctors in attendance. None of the attendants

developed any symptoms of dysentery, however, at any time during the epidemic.

Clinically, none of the patients was very sick from the dysentery. Five cases ran temperatures ranging between 102 and 104 degrees, thought to be directly attributable to the disease. The other cases, where conditions other than dysentery were present, could not be said to have had a fever due to the dysentery. Of the complaints, two had nausea and vomiting, one had pain in the stomach, one had cramps, and one had lower abdominal pain. The other thirteen cases were entirely free of symptoms referable to the dysentery other than loose stools and irritation of the buttocks. In two cases pain was quite severe, the loose stools persisted for over a week and they were quite sick for a time.

Concerning the character of the stools, all were liquid and green at some stage. Mucus was reported at times in most of the cases. Blood was reported in the stools of eight cases. At the height of the attack, the patients averaged five stools in twenty-four hours, one having as many as twelve stools in one day, two reporting nine.

(To be concluded)

ENDOSCOPIC PROSTATIC RESECTIONS*

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For the last three years the urologists have discussed nothing except transurethral resections. Out of the maze of conflicting opinions and even more confusing statistics certain facts are becoming established and this method is assuming its proper place as a valuable aid in our treatment of vesical neck obstructions.

I will discuss today the various types of obstruction, suggesting in which forms endoscopic resections will give the best results. There are three distinct types of vesical neck obstruction: (1) carcinoma of the prostate, (2) fibrotic contracture, (3) adenomatous hyperplasia of the prostate.

1. Carcinoma. Usually the first symptoms complained of by the patient with carcinoma of the prostate is difficulty in urinating. The process has usually developed sufficiently at this time to make radical prostatectomy inadvisable. In the past we have had nothing to offer this patient except catheterization with an eventual cystotomy and permanent drainage. As carcinoma of the prostate develops very slowly the patient has a life expectancy of possibly several years. If a cystotomy is per-

formed with permanent drainage he is condemned to a miserable existence which may be of long duration.

Resection transurethrally is of inestimable value in these cases. The obstruction can be relieved; it recurs slowly and even if more tissue must be removed later, the patient is quite comfortable and can conduct his affairs for many months, possibly a year or two, a period in which he would otherwise have been an invalid.

2. Fibrotic contracture. In this condition there is a fibrosis of vesical neck which by its shrinkage causes a stenosis of the vesical orifice. This contracture is more marked in the posterior portion, producing a ridge raised above the level of the trigone, the so-called "median bar." As the stenosis develops, it produces increasing difficulty in urinating and gradually increasing residual urine. Formerly, our choice of treatment lay between a cystotomy with removal of a V-shaped section of the fibrous tissue and a punch operation. The first required long hospitalization and the second was undesirable as it was difficult to remove the right amount of tissue, and complications, as hemorrhage, were not infrequent. Endoscopic resection is ideal in these cases as it meets all the indications and it is giving uniformly good results.

3. Glandular hypertrophy. The pathology of this condition has been so ably discussed by Alexander Randall that I cannot do better than quote from his recent article.

"The prostate is a racemose gland with five definite glandular masses. Hypertrophy may originate in and be limited to any one or any group of the glandular areas. Prostatic hypertrophy is the development of one or several adenomata, which as they grow, cause a tissue atrophy about themselves which constitutes a false capsule. It is this atrophic tissue which forms the line of cleavage about the adenomata which makes their enucleation possible.

a. Bilateral lobe hypertrophy. Here glandular masses are simultaneously growing. They are entirely separated and, as they develop, produce increasing pressure upon and deformity of the prostatic urethra. They may elevate the vesical neck and trigone but they do not enter the bladder cavity.

b. The solitary commissural adenoma. This arises in the glands of the posterior commissure and its growth is accompanied by compensatory hypertrophy of the trigonal muscle.

c. A combination of the first two. If the adenoma of the posterior commissure is large enough to cause dilatation of the vesical neck, the lateral lobes may force their way through the sphincter and cause marked deformity of the floor and neck of the bladder.

d. Adenoma of the subcervical glands of Albarran. The trigonal muscle passes under the adenoma and contraction of the bladder muscle increases blockage of the vesical orifice.

e. Lateral lobe and subcervical adenomata. The sphincter is dilated and there is much intravesical protrusion. Growth is unlimited and the adenomas are usually very large."

* Read before a Meeting of North Pacific Surgical Association, Seattle, Wash., Dec. 8, 1934.

Let us now consider the treatment proper in these different types of obstruction. I am sure you will agree with me in the premise that, when adenomata have developed and are causing obstruction, their removal is the proper surgical procedure.

Many writers in the last few years have stated that the removal of a portion of the adenomatous tissue caused an atrophy of the remaining portion. They have explained this on the basis of a concomitant inflammation which was relieved by improved drainage, causing a shrinkage of the remaining adenomatous tissue.

Virchow once stated that, "when we see an augmentation of connective tissue, muscular or glandular tissue with a nodular, circumscribed, formation, we call the same a tumor not an inflammation."

That there is frequently an associated edema, particularly during an acute retention, is indisputable. All of you are familiar with the fact that, when you do a two-stage enucleation, the adenomata usually are somewhat smaller at the second operation than at the time of the cystotomy. Similar reduction in size undoubtedly follows the improved bladder drainage, resulting from the resection of a portion of an obstructing adenoma. The portion of the adenoma remaining after a partial adenectomy will, however, continue to develop and will eventually result in urinary obstruction.

In discussing the relief of obstruction due to adenomatous hyperplasia of the prostate I wish to state my belief that a permanent result depends upon the removal of all of the new adenomatous tissue. I realize that this is a controversial subject. McCarthy and many others insist that a canalization of the urethra is sufficient, but he will not say more than that a relative permanency is reasonably to be expected from complete canalization of the prostatic urethra.

Hicks of the Lahey Clinic analyzed the situation when he stated recently: "Judging from the amount of tissue obtained in the average case, probably the removal of about one-sixth to one-fifth of the total gland is sufficient to relieve obstruction if a canalization is all that is sought. Consequently the larger the gland, the greater is the amount of tissue left in situ. As this tissue is always infected or becomes infected following operation, a good culture medium and ideal conditions are supplied the infesting bacteria by the serum and devitalized tissues sealed in the glandular ducts by coagulation and edema. These facts seem to offer the logical explanation for the severer complications in the larger glands. It

seems improbable also, even though patients of this class did successfully withstand the operation, that good results can be expected. The prostatic urethra when greatly distorted can never be restored to a normal contour by any operation that does not remove the entire adenomatous tissue. Unless resorption does occur poor functional results are to be expected."

I spent some time with Alcock last summer and I was very glad to find that he has come to the same conclusion. He feels that for a resection to be successful all the tissue must be removed that would be taken out in an enucleation. Starting with the removal of a small amount of tissue he has gradually increased the amount. He does not remove more than 25 gm. at one time, preferring to make repeated resections, any number that may be necessary as determined by residual urine and the contour of the prostatic urethra as determined by urethrogram.

In view of the entirely different types of adenomatous hyperplasia, it is hardly to be expected that one method should be that of choice in the removal of all of them. I will suggest which, in my opinion, is the better in the different forms of adenomatous hyperplasia.

1. Lateral lobe hypertrophy usually occurs in combination with an adenoma of the posterior commissure. The median lobe tends to keep the lateral lobes apart and if it is removed the lateral masses exert increased pressure upon the prostatic urethra. The removal of the lateral adenomata as well as the median is, therefore, necessary to insure the patency of the urethra. Repeated resections are necessary in this type to give any permanent results and enucleation is decidedly preferable.

2. If a median lobe without lateral lobe enlargement is causing the obstruction, resection is the method of choice.

3. Adenoma of the subcervical glands occurring alone offers a splendid field for resection.

4. For adenomata of the subcervical glands, combined with lateral lobe hypertrophy, repeated resections would be necessary for any permanent relief and enucleation remains the method of choice.

Fortunately the period is passing in which resection was regarded as a minor procedure. The preoperative treatment is just as important in resections as in enucleation. If catheter drainage does not give the desired result, the bladder should be opened and drained. When the patient's condition has sufficiently improved, the method of removing

the obstruction can be elected on a basis of the pathology present.

The mortality rate from resections has varied in different clinics from over 20 per cent to practically nothing, a hardly understandable discrepancy. The present mortality is probably about 4 to 5 per cent which will be reduced as resection is used on more carefully selected cases.

The complications usually occurring have been reported in the literature. Infection is still the most important of these. This may be in the form of a septicemia, a pyelonephritis or a periurethral abscess. Not uncommonly there are discrete foci of pus in the prostate and the opening of these is a probable factor in the causation of a generalized or localized infection. However, accidents are more common than is generally believed. Rupture of the bladder has occurred not infrequently. This can be usually avoided by the prevention of too great intracystic pressure from the irrigation fluid. A thin walled bladder or a diverticulum will, however, make rupture a possibility, even if due precautions are observed. Explosions of hydrogen gas have occurred twice in Kretchmer's service and have only recently been reported. The explosion ruptured the bladder in both cases.

SUMMARY

In endoscopic resection we have a method of the greatest value in (1) carcinoma of the prostate, (2) fibrotic contracture, (3) both types of middle lobe hypertrophy; (4) if there is lateral lobe hypertrophy, while removal by repeated resections is possible, enucleation is simpler and more satisfactory.

The preparatory treatment of the patient is as important in resection as in enucleation and the method of removing the obstruction should be chosen on the basis of the pathology present and not on the desire of the patient nor the predilection of the operator.

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WHAT SHOULD A PATIENT WITH ARTHRITIS EAT? Walter Bauer, Boston (*Journal A. M. A.*, Jan. 5, 1935), points out that the first requisite in treating each patient with skeletal symptoms is to determine whether or not the symptoms are due to arthritis and, if so, to determine the type of arthritis. Not until this has been done should one attempt to prescribe a diet. There is no specific diet for patients with arthritides of known origin other than the dietary which would ordinarily be prescribed whenever the particular disease or etiologic agent responsible for the arthritis is dealt with. Gout is the one exception.

EPIDEMIC PAROTITIS COMPLICATED BY ACUTE APPENDICITIS*

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Epidemic parotitis complicated by acute appendicitis was first described by Simonin in 1903. Other cases have been reported by Jalogiuer (1909), Rosenuau and Dunlap (1916), Gaudier and Swnyng-hidow (1925), and Benassi (1927). Sandler and Finne¹ reported a case of a boy four and a half years old, in whom the diagnosis of a gangrenous appendicitis during the acute stage of mumps was confirmed by operation. Donnelly and Oldham² added their case of a seven-year-old boy who developed acute appendicitis with peritonitis at the height of an epidemic parotitis. To these may be added the following case:

M.J.P., aged six years, developed a bilateral swelling at the angle of the jaws and complained of pain on swallowing Sept. 11, 1934. Her temperature rose to 103 degrees orally and remained elevated for two days. On the third day she vomited once, without preceding nausea or abdominal pain, the temperature dropping to 100 degrees. On the afternoon of the fourth day she first complained of pain near the umbilicus and vomited twice during the night. I was asked to see her the following day.

Examination showed an acutely ill, well nourished and well developed girl of six years lying in bed in obvious pain. The pain was abdominal, cramp-like and paroxysmal in character, causing her to draw up both legs and cry out. Her temperature at this time was 101.6 degrees, pulse 118 and respirations 28. There was marked swelling in the parotid regions with some tenderness at the angle of the jaws on both sides. The tongue was slightly coated; the pharynx, ears, lungs, heart, skin and reflexes were normal. There was definite tenderness in the right lower abdomen with spasm of the overlying muscles. Rectal examination revealed tenderness in the right pelvis.

A diagnosis of mumps with an acute abdominal complication was made and the child was admitted to the hospital at once. Voided urine specimen showed a faint trace of albumin, 115 degrees of acidity, an occasional red blood cell and a trace of acetone. The white blood count was 14,200 with 76 per cent polymorphonuclears and 24 per cent lymphocytes; erythrocytes 4,980,000 and hemoglobin 90 per cent. Surgical consultation was asked and she was seen at 7 p.m. by Dr. Harry Shaw who concurred in a diagnosis of acute appendicitis. The clinical picture at this time was clearly defined, but the blood count confused the issue. Three hours later the count was 13,700 with 81 per cent polymorphonuclears.

With this subsequent rise in the differential count it was felt that operation could no longer be delayed and the patient was taken to the surgery immediately. At operation a large swollen appendix, covered with fibrin and gangrenous in its distal third, was removed through a McBurney grid-iron incision. There was a small amount of thin fluid in the peritoneal cavity and the characteristic colon bacillus

*Read before a Meeting of King County Medical Society, Seattle, Wash., Nov. 5, 1934.

1. Sandler, A. S. and Finne, B. A.: Unusual Case of Epidemic Mumps Complicated by Gangrenous Appendicitis. *Arch. Pediat.*, 49:175-177, March, 1932.

2. Donnelly, J. and Oldham, J. B.: Mumps and Appendicitis. *Brit. M. J.*, 1:98-99, Jan. 21, 1933.

odor was noted. One cigarette drain was placed in the right iliac fossa. Two hundred and fifty cc. of a 10 per cent dextrose solution in normal saline were given intravenously during the operation. The immediate postoperative recovery was complicated only by the child's inability or refusal to take what was felt to be sufficient fluid by mouth. On the third day three hundred cc. of the dextrose-saline solution were given intravenously. From then on her convalescence was uninterrupted and she went home on the eleventh day with the incision almost completely healed.

The parotid swelling disappeared on the second post-operative day, the temperature dropping gradually to normal during the following week. I saw her again on October 19. At this time there were no complaints, her appetite was good, her bowels regular, her temperature normal, urinalysis was negative and she had regained all the weight lost during her illness. The wound was clean and well healed. She was discharged well at this time and was to have gone back to school the following week.

DISCUSSION

The etiology of epidemic parotitis is as yet a mystery. That the disease is due to a virus is accepted but little else is known. Donnelly and Oldham include in their report a list of the usual complications, stressing the frequency of orchitis and pancreatitis and the less commonly seen ovaritis, mastitis and enlargement of Bartholin's glands. They state: "It is generally admitted that these complications are metastatic infections arising from the primary foci in the salivary glands," and ask, "is appendicitis another possible metastatic complication of mumps or is their association simply a coincidence?" It is interesting to note that in their case a tentative diagnosis was made of acute pancreatitis, and it was not until three days later, when the pain and tenderness localized in the right lower quadrant, that a diagnosis of acute appendicitis was made.

Koplik has called attention to the pain and swelling in the tonsils, and enlargement of the lachrymal glands has been reported in some instances. In a personal communication Dr. Arthur Wade reported a case of this latter, in which the involvement of the lachrymals was followed in three days by the typical parotid swelling.

The onset of the appendicitis has occurred approximately a week after the parotitis started in all of the cases reported. In our case the time was five days. Benassi states that, when the appendicitis develops at the height of the parotitis, there is "with some doubt and reserve, enough evidence to support the following conclusion, that the virus or organism which lodges in Stenson's duct travels to the appendiceal region by way of the digestive tract or by way of the hematogenous or lymphatic systems."

In conclusion, I wish to emphasize the significance of the blood count in an acute appendicitis complicating mumps. The first to make any observations on the differential and total leucocyte counts in mumps was Sacquepee³ who published the following facts after a study of forty cases: a relative and an absolute lymphocytosis is established and an orchitis causes a polymorphonuclear increase.

Others^{4, 5, 6} have more recently confirmed these findings. Pepper and Farley⁷ state that the fall in leucocytes is most marked in severe cases with fever and that the lymphocytes may be increased up to 50 to 60 per cent. This lymphocytosis, according to Lucas,⁸ begins with the onset of the disease and lasts from ten to fourteen days.

The presence of an ovaritis does not produce a polymorphonuclear increase as in the case of an orchitis. In an uncomplicated appendicitis in a child of six years a higher total and differential count would be looked for. It is clear that in this case these two factors were working at odds, confusing the picture and making more difficult the diagnosis of the abdominal condition.

3. Sacquepee: Arch. Exp. Med. et Path. Anat., 14:114, 1902, quoted by Feiling, A.: Lancet, 2:71-72, July 12, 1913.

4. Morse, J. L.: Clinical Pediatrics, p. 413, W. B. Saunders Co., Philadelphia, 1926.

5. Schilling, Victor (Gradwohl): The Blood Picture and Its Clinical Significance, p. 265. C. V. Mosby Co., St. Louis, 1929.

6. Holt, L. E. and Howland, J.: Diseases of Infancy and Childhood, p. 969. D. Appleton Co., New York, 1933.

7. Pepper, O. H. and Farley, D. L.: Practical Hematological Diagnosis. W. B. Saunders Co., Philadelphia, 1933.

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RECENT PROGRESS IN TREATMENT OF PLUMBISM. According to Irving Gray, Brooklyn (*Journal A. M. A.*, Jan. 19, 1935), the administration of a diet low in calcium and the addition of either ammonium chloride or phosphoric acid definitely causes an increased excretion of lead. The addition of a diet high in phosphorus aids in the excretion of the lead. In several cases of chronic plumbism the lead in both the urine and the feces was increased in amount after phosphate therapy was instituted. Experimental and practical experience bears out Shelling's opinion. The addition of a high phosphorus, high calory diet with sufficient vitamin content improved the general appearance; the nutritional requirements were adequate and the rate of excretion of lead was maintained. In the "deleading" treatment of his patients the author is now using the low calcium, high phosphorus diet with a ratio of 1-3 and 1-4. In persons who have absorbed lead it is possible that waves of liberation occur from time to time and produce symptoms of clinical activity. The lead that has been absorbed and is released at certain periods can be much more rapidly excreted at stated intervals with this type of treatment. Although complete "deleading" is not possible, as demonstrated experimentally, nevertheless it is reasonable to assume that the lead excreted is a large fraction of the lead that has been absorbed. The "deleading" treatment may have to be repeated at intervals if there is evidence of continued excretion of abnormal amounts of lead. It is advisable that all patients undergoing "deleading" treatment be hospitalized.

THE TANNIC ACID-SILVER NITRATE TREATMENT OF BURNS*

A METHOD OF MINIMIZING SHOCK AND TOXEMIA
AND SHORTENING CONVALESCENCE

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After publication by Davidson¹ of the tannic acid treatment of burns, it came into general use because its results have been far superior to those of any other treatment theretofore available. The writer has testified to its efficiency in no less than three publications.^{2, 3, 4}

An improvement on the tannic acid method of treating burns is herewith presented. The new method consists in the use of tannic acid solution 5 per cent, followed by silver nitrate solution 10 per cent. With this treatment results are attained which are far better than those obtained by the use of tannic acid alone.

Following an extensive burn, as usually seen, shock and toxemia, urinary suppression and albuminuria early supervene with concentration of the blood elements. The almost instantaneous sealing of the burned areas by the application of tannic acid, followed by silver nitrate, stops the fluid loss at once, and the treated burned tissues are made insoluble and nonabsorbable. At the same time an antiseptic covering is supplied and the patient is made comfortable. Urinary suppression and albuminuria do not occur. These facts individually would be interesting but together they are significant.

Let me recite in some detail the method of treating an extensive burn with tannic acid and silver nitrate. The first indication is the administration of a narcotic, to be repeated frequently enough to control pain. Blebs are opened and loosened skin is removed. Freshly made 5 per cent tannic acid solution is then applied freely with cotton swabs to all burned areas. One thorough application is usually sufficient. The surface dries quickly so that by the time the entire burned area has been sponged with

the tannic acid solution the surfaces to which it was first applied are practically dry. Excess solution, if any, is gently sponged off with gauze.

Now the entire area is sponged over with a 10 per cent solution of silver nitrate. The burned tissues become black almost instantaneously. All oozing and leaky areas are sealed at once and the patient is encased in an impervious antiseptic dressing that has formed in seconds instead of hours. Increasing blood concentration is stopped. A fresh cotton swab should be used for each application of the silver nitrate solution to prevent tannic acid being carried back into the silver nitrate container. Twelve to twenty-four hours after the first treatment any blebs that may have formed are treated as at the first application.

The patient's condition immediately after these applications and during the subsequent hours is better than for the same period after the application of tannic acid alone. There is little or no shock or toxemia. The next day the patient's condition is surprisingly good.

Statistics show that sixty per cent of deaths from burns occur in the first twenty-four hours. The tannic acid-silver nitrate method will save a great many of these lives. By the application of tannic acid followed by silver nitrate the patient is quickly carried past these most critical hours of his burn. He is placed twenty-four to thirty-six hours ahead.

The tanning having been thus early completed, the coagulated areas are dried and kept dry by placing an electric lighted tent over the patient. This is important. Careful later treatment and nursing are as necessary after this treatment as when tannic acid alone is used. Fluids must be forced up to 1000 cc. or more for every twenty-five pounds of body weight every twenty-four hours. It has been noted that patients under this treatment are early able to take the necessary amount of fluid by mouth so that a minimum number of intravenous injections are required.

The coagulum is to be removed at the earliest possible moment. Some of it will come away in the first few days. Other portions will adhere longer. That which loosens and has dry, healed areas beneath it should be cut away to prevent moisture collecting with the resulting breaking down. Those areas which show moisture beneath their surfaces must also be cut away at once. This may be done with a scalpel, without causing even minute bleeding, by cutting against the coagulum and away from the patient.

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*Read before a meeting of Multnomah County Medical Society, Portland, Ore., November 7, 1934.

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The coagulum having been removed, any moisture beneath is gently sponged off. Oxyquinoline sulphate scarlet RR** gauze is then applied to all unhealed areas and dry gauze is placed over it. The early removal of the loosening crusts and the application of this epithelization promoting ointment-impregnated gauze will minimize later toxic absorption and will promote speedy healing to the maximum degree. Large areas will be entirely healed by the time the crusts come away.

Cultures taken from unhealed areas beneath intact crusts have all been sterile. Where crusts are broken staphylococcus albus is present.

It is interesting to compare in detail the tannic acid alone treatment with the tannic acid-silver nitrate treatment. The tannic acid alone treatment is far superior to the old oil and grease method. It is not intended that any statement herein made detract from its usefulness. The purpose is to present a treatment which is a further improvement. The application of tannic acid solution alone tans the burned tissues slowly in a period varying from twelve to twenty-four hours or longer. During this time weeping and oozing continue with great loss of body fluids. Through the method itself the burned areas are necessarily kept moist during the period of application which allows infection to develop under the crusts and along their edges, and allows during these early hours a certain amount of absorption of toxic products.

Also, during this long application of wet medication the patient becomes chilled at a time when warmth is so essential. It is impossible to keep the solution warm after application and especially does this apply to that which flows into the bedding. Furthermore, the moisture water-logs the tissues which were originally injured or are adjacent to the burned areas and they break down. Thus a portion of the first degree burn is changed into second degree and the second degree into third degree lesions. Further destruction also takes place in the third degree areas.

Added destruction does not occur when the tannic acid-silver nitrate method is used as here indicated. The short period of application of tannic acid solution affects only those cells which are al-

ready destroyed and the silver nitrate tans them quickly without injury to additional cells. The tissues not being water-logged dry quickly so that perhaps thirty minutes after the treatment is begun, instead of twenty-four to thirty-six hours, the areas are dry. Drying and keeping the tanned areas dry is very important. By so doing the area of destruction is immediately made less instead of being made greater by the treatment. Only a comparatively small amount of each solution is required to treat an extensive burn.

Using tannic acid alone the author has not been able to discharge patients with extensive burns from the hospital in less than three months but with the tannic acid-silver nitrate treatment patients are ready to go home in one-fourth to one-half this length of time. Healing is greatly speeded up. When tannic acid alone is used, a red inflammatory area extends into the surrounding zone sometimes as far as three inches. When tannic acid followed by silver nitrate is used, the area surrounding the burn is stained but there is no inflammatory reaction.

Recently in one of our hospitals there were two patients in adjacent rooms who had similar gasoline burns that involved the leg, thigh, hand and face in each case. The patient whose burn was treated by tannic acid alone ran a temperature up to 103 degrees and during the first ten days every afternoon temperature was above 101 degrees. During four weeks (to date of this paper), the patient under tannic acid and silver nitrate had a temperature above 100 degrees only once, on the eighteenth day, when it went to 100.2 degrees.

By the early use of tannic acid-silver nitrate there is little or no loss of fluids through weeping, there is no absorption of toxins, there is no increased destruction of tissues, there is no pain, there is no additional concentration of the blood, there are little or no effects upon the kidneys and other internal organs. Albumin and other abnormal elements do not appear in the urine when this treatment is used early and the areas kept dry, except in the early hours sugar may be present. The coagulum is much thinner and more flexible than when tannic acid alone is used and the patient is better able to move about in bed.

When tannic acid solution is applied to burned tissues, there is formed a combination between the tannic acid and the protein. This seems to be a rather loose combination, for upon the application of the silver-nitrate there is formed a black insoluble and nonabsorbable material.

**Oxyquinoline sulphate scarlet R gauze is made as follows:

Oxyquinoline sulphate	gr. x
Chloretone	gr. xl
Scarlet R ointment, 5%	oz. iv
Liquid petrolatum	dr. iv

Mix first and second ingredients separately, each with one-half the fourth ingredient, and then mix with the third to a smooth ointment. Heat the ointment on a water bath and immerse wide-mesh rolled gauze bandages until impregnated throughout the depth of the roll.



Fig. 1. Case 1, R.B. 115 hours after receiving a gasoline burn covering 54 per cent of his body surface. Viewed from the left rear. Panorama photograph. Tannic acid and silver nitrate were applied four hours after the burn. Tanned areas dry.

There seems to be no danger of argyria, for it has not made its appearance in any of the cases in which the treatment has been used. Close observations seem to indicate that the silver nitrate is quickly and completely combined with the tannic acid and the surface fluids.

The application of the silver nitrate to the tannic acid impregnated areas is not painful. No patient has complained of it except for a mild, brief smarting, and all welcome the early and prompt relief from pain which the speedy tanning affords.

The use of tannic acid followed by silver nitrate is not as new as may seem at first glance, as the writer has used the combination for probably fifteen years for the removal of those areas of tattooing which were too large to be excised. The first burn treated by the tannic acid-silver nitrate method was a minor one on the author's own arm. Then it was used on burns of moderate areas and later tentatively on extensive burns.

Many burns of lesser extent, that under other treatment require hospitalization, may be treated as office cases. Frequently only one or two office visits are required.

In all, twenty-one burns have been treated by this method with very gratifying results except in the case of a man of seventy-seven years who had an 80 per cent burn and who died ten hours after the accident. Other uses of tannic acid-silver nitrate are not discussed here as they are not within the scope of this paper. Three cases will be reported.

Case 1. R. B., age 45, on July 25, 1934, at 3:30 p.m., received in an automobile accident an extensive gasoline burn. He was seen at Clarke General Hospital at Vancouver, Washington, at 7:30 p.m. The burned area extended from the top of his head to the right heel and involved the entire face and head except a portion of the left ear and the eyelids. The right arm, forearm, hand and shoulder were burned except a small area medially below the axilla. The left hand was burned and the forearm not quite half way to the elbow. His entire back was involved except a small area in the lumbar region where his belt encircled his waist. Both buttocks were burned and the right thigh posteriorly and laterally and the leg in its entire circumference from above the knee to below the ankle. The left thigh was also burned and the left knee (figs. 1, 2).



Fig. 2. Case 1, R.B. Upper portion of body viewed from right side. Tanned areas are black.

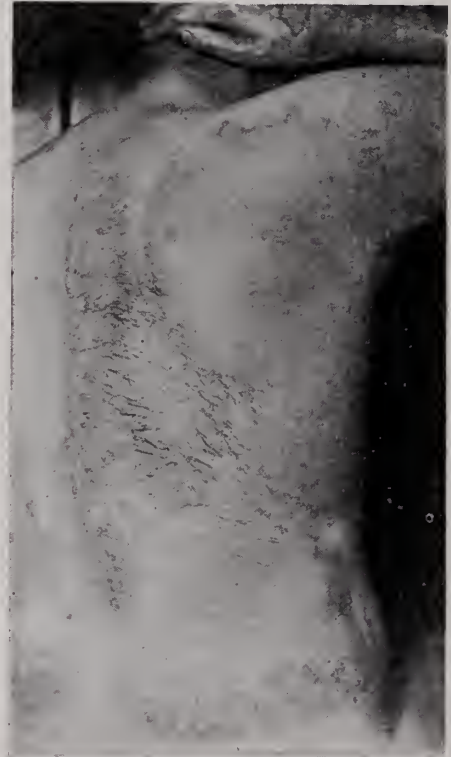


Fig. 3. Case 1, R.B. Back and right side after healing. No contracted scars or disfigurement except on back of hand, which was Thiersch grafted.

The burned areas totaled 54 per cent of his body surface (by actual measurement), of which 24 per cent was third degree, 22 per cent second and 8 per cent first.

His condition was considered hopeless and no thought for his recovery was entertained by the three physicians who first saw him. I saw him four hours after the accident.

He had received one-half grain morphine followed later by one-fourth grain, and a five per cent nongreasy tannic acid ointment had been applied to the burned areas. My application of 10 per cent silver nitrate solution over the tannic acid application, after opening all blebs and remov-

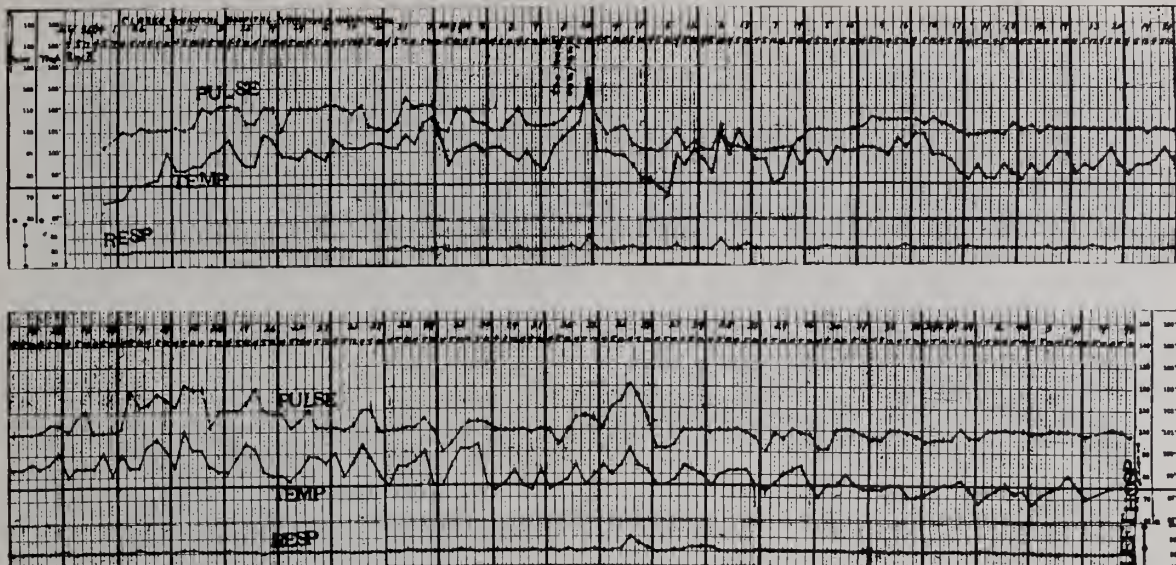


Fig. 4. Case 1, R.B. Graphic chart showing low range of temperature, pulse and respiration during entire forty-two days stay in hospital.

ing all loose skin, completely stopped all oozing of body fluids immediately. Five per cent tannic acid solution was applied to all areas freshly denuded of skin and this was followed by 10 per cent silver nitrate solution. After the tanning was completed the patient said he felt comfortable.

From this on fluids were forced by mouth and on each of the first three days 1000 cc. were given intravenously, twice a day. Fluids given by rectum were expelled but there was no diarrhea. He vomited during the first night but there was no reawakening of his previous gastric ulcer symptomatology.

During the first twenty-four hours he was given 1000 cc. 5 per cent glucose and 1000 cc. normal saline solution intravenously and 5580 cc. of fluids by mouth, a total of 7580 cc. or two gallons, or almost 1000 cc. for every twenty-five pounds of his 199 pounds body weight. The fluids included mildly alkalized water and fruit juices in considerable amounts. Competent nurses forced fluids internally and kept the tanned areas dry externally.

His hemoglobin when first seen was 165 per cent of normal and twelve hours later, the next morning, was reduced to 132 per cent. During the next twelve hours it came down to near normal where it remained. During the first twenty-four hours the urinary excretion was 350 cc. and the second day 330 cc. There were no albumin and other abnormal elements in the urine at any time except some glucose in the first specimen. During the third twenty-four hours the urinary output increased to 2020 cc. With two exceptions, one due to too much company, his temperature did not rise above 101 degrees. The pulse was never over 112, except the day on which he had too much company, when it went to 128 (table 1).

His condition was remarkably good at all times. Eighteen hours after the burn, instead of being in shock he insisted that he be allowed to have his secretary and his business partner come to the hospital as he wished to dictate some letters and transact some business. This, of course, was denied him, much to his disappointment.

During his stay in the hospital the patient was in a tent heated by a sufficient number of electric light bulbs to keep him warm and comfortable, very special attention being paid to keep all the tanned areas dry. On the third day the tanned skin on his face began to loosen and on the fourth about one-third of the blackened areas were off the left hand. By the seventh day the face was almost free of the

tanned skin and presented a dry, red sunburned appearance. He was shaved on the tenth day.

His daily blood counts were quite satisfactory during his entire stay in the hospital as were all other objective and subjective signs and symptoms. His white blood cell count ranged from 6650 to 17,250, except following too much company when it went up to 27,450. Three cultures made from the serum beneath the intact coagulum proved sterile.

As the crusts came off many areas were dry and entirely healed beneath. All unhealed areas were dressed by the application of a single layer of oxyquinoline sulphate scarlet R gauze, overlaid by a thin layer of dry gauze held on by very narrow bands of adhesive plaster. The posterior surface of the right hand and forearm and small areas on the arm required skin grafting.

Thiersch grafts were, therefore, applied on the twenty-sixth day. There was a 100 per cent take on the hand and forearm and only slightly less on the arm where he rested some weight on the grafted area. Until the time of the skin grafting he complained of almost continual pain in the right forearm, the area of deepest burn. Other areas caused no complaint. The last of the crusts were removed from the leg and thigh on the thirty-first day. At this time the major portion of the entire burned area was entirely healed. On the thirty-second day the last of all the coagulum was removed and only small areas were unhealed.

The patient left the hospital on the forty-second day and walked up and down stairs at his home the following day. He was entirely healed except five or six areas one-eighth inch in diameter and two slightly larger. At this time the left hand showed very little evidence of having been burned. The right hand was freely movable with no contractures and only some redness and slight stiffness to show the effect of the burn. All other areas of the body were also nicely healed, the surfaces being soft, pliable, free from contractures and hypertrophied scars. Ninety-eight days after the burn he returned to work, having spent some time at the seashore and on a trip to California (fig. 3).

Case 2. August 22, 1934, at 1:30 p.m., A.D.B., age 4 years, sat down in a washtub of hot water, receiving burns of his thighs, buttocks, back, right arm, forearm and hand, covering 42 per cent of his body surface (by actual measurement). He was seen at the Doernbecher Hospital of the University of Oregon Medical School six hours later, having had grease applied at his home one hundred miles away.

He was given a narcotic upon arrival at the hospital and the grease was re-of ether. All loosened skin was cut moved as well as possible by the use away. Freshly made tannic acid solution, 5 per cent, was then applied to the burned area, followed by 10 per cent silver nitrate solution. Within a few minutes the entire area was satisfactorily tanned and dry. However, in the later days it was difficult to keep the crusts dry because of the previous application of grease, so that the temperature at one time went up to 102.8 degrees, and the pulse to 144 (fig. 5).

His fluid intake by mouth was so satisfactory from the very beginning that it was necessary to give him only one intravenous injection. It would have been impossible to have given rectal fluids because the burned area included the skin above the anus. Twenty hours after the accident instead of being in shock he wanted to know when he could go home.

The urinary output the first day was considerable over 390 cc., the second over 900 cc., and continued in adequate amounts. In this patient there was a small amount of albumin in occasional specimens. This is accounted for by the early application of grease. The first urine specimen showed sugar.

Eighteen hours after he was burned his hemoglobin was 170 per cent of normal. By sealing in his fluids promptly and forcing fluids by mouth, it was brought down to near normal within twelve hours, where it remained. Fruit juices and water with small amounts of alkalis were included in the fluid intake. Cultures taken from three areas beneath unbroken coagulum gave no growth but two taken from uncovered areas showed staphylococcus albus.

Despite the early application of grease and the irregular temperature and pulse, the areas were entirely healed and the child was ready to go home on the twenty-first day. All skin was soft and flexible and restored to practically normal and he had no contractures. No skin grafts or other surgery was necessary (fig. 6).

Case 3. L.V.E., age eighteen months, received on October 12, 1934, a 30 per cent hot water burn, mostly second degree, of the back, chest, abdomen, hand and scattered areas. Grease had been applied at his home. Upon his arrival at Doernbecher Hospital of the University of Oregon Medical School, after a 100-mile automobile ride, the grease was removed as well as possible, all blebs were opened and loose skin was removed and tannic acid and silver nitrate solutions were applied (figs. 7, 8). At this time his hemoglobin was 98.8

DATE, 1934		Fluid intake	Urine	Hemoglobin per cent	Red blood cells, millions	Leucocytes	Small lymphocytes	Large lymphocytes	Transitional	Polynuc. Neutrophils	Eosinophiles	Others	Staff cells
July	25 pm	690		165	6.55								
	26 am	2980	350	135	6.42	10400	21			79		1	
	pm	3820			6.50								
	27 am	3760	350	103	4.68	6650	42			58			
	pm	3760	720										
	28 am	3030	1300	81	4.03	7050	41			57		2	6
	pm	3150	780	123	4.90								
	29 am	2700	500	110	5.29	6050	50			49	1		12
	pm	2850	780	109	5.14								
	30 am	2820	700	116	5.31	6900	39	1		60			10
	pm	3000	600	100	5.01								
Aug.	31 am	3190	800	110	4.58	8500	30	1	1	64	4		12
	pm	2790	1740	122	5.20								
	1 am	2970	1900	110	4.60	9850	21	5		70	4		20
	pm	3300	1260	100	4.43								
	2 am	2970	2000	107	5.04	12100	17			81	2		
	pm	3060	1320										
	3 am	2890	1950	100	4.99	17600	22	1		73	4		11
	pm	2970	1650										
	4 am	2010	750	107	4.76	27450	17	1		80	1	1	28
	pm	1950	1800										
	5 am	2850	1300	104	4.65	20600	17	1		80	1	1	12
	pm	3060	1530										
	6 am	2950	1850	106	4.63	16000	24	3		71	1	1	5
	pm	2760	2190										
	7 am	2970	1550	106	4.64	15300	18			82			3
	pm	2520	1440										
	8 am	2520	1800	100	5.15	15200	14	2	1	82	1		17
	pm	2850	1740										
	9 am	2810	2150	108	4.51	16200	21			77	2		7
	pm	2816	1350										
	10 am	2760	1100	105	5.32	16000	18	1	1	78	2		12
	pm	2500	1980										
	11 am	2450	1700	103	4.82	12150	20		1	77	2		2
	pm	2650	1475										
	12 am	2510	1550	100	4.47	14250	17			85			4
	pm	2500	930										
	13 am	2410	1750	108	4.47	13900	16	1		81	2		6
	pm	2510	1500										
	14 am	2620	2100	100	4.59	13150	24	2		72	1	1	2
	pm	2310	1620										
	15 am	2160	1980	106	4.95	12900	23	3	5	68	1		
	pm	2250	1020										
	16 am	2460	1320	100	4.80	17250	20	3		74	3		11
	pm	2048	1920										
	17 am	1920	1440	110	4.96	11950	34	2	1	61	1	1	
	pm	1920	1200										
	18 am	1940	960	105	4.63	9100	26	4	3	66		1	2
	pm	1830	840										
	19 am	1920	800	97	4.33	13350	35			62	2	1	2
	pm	1770	1020										
	20 am	1720	700	102	4.32	15150	30	1		63	5	1	
	pm	1830	1500										
	21 am	1780	850	105	4.52	11000	46		1	53			
	pm	1980	540										
	22 am	1920	800	100	4.93	9500	32			65	2	1	
	pm	1740	840										
	23 am	1920	700	100	4.19	8150	35			62	3		
	pm	1590	660										
	24 am	1560	850	96	4.00	8200	35			62	3		
	pm	1980	940										
	25 am	2190	1250	96	4.41	8500	28	1		67	4		1
	pm	1890	1440										
	26 am	1680	850										
	pm	2010	1080										
	27 am	1560	900	100	4.36	8750	36			62	2		3
	pm	1470	1020										
	28 am	1440	1350										
	pm	1200	1020										
	29 am	1320	1100	110	4.43	12950	36	1		63			3
	pm	1530	540										
	30 am	1560	1300										
	pm	1500	1020										
	31 am	1200	1200	111	4.60	10350	37			59	3	1	1
Sept.	pm	1590	540										
	1 am	1320	1100										
	pm	1590	990										
	2 am	1400	1350	110	4.64	13350	37			60	2	1	
	pm	1590	720										
	3 am	1000	500										
	pm	1590	420										
	4 am	1200	600	107	4.45	9200	46			51	3		
	pm	1590	720										

Table 1.
Showing details of fluid intake and output, also details of blood counts, case 1.

per cent, white blood count was 46,750 which dropped to 16,800 and 9,800 on the second and third days respectively. There was no urinary suppression and no albumin. Upon arrival at the hospital his temperature was 104 degrees. Due to the early grease application his temperature was somewhat irregular but



Fig. 5. Case 2, A.D.B. Showing forty-two per cent burn properly tanned and dry after application of tannic acid and silver nitrate. Note arrangement of tent and the electric light heat provided.



Fig. 6. Case 2, A.D.B. Patient ready to leave hospital on twenty-first day after burn. No contracted scars or disfigurement.

he was ready to be discharged from the hospital on the twenty-first day with all areas healed except a small one near the umbilicus and without skin grafting or surgery of any kind. His skin was soft and pliable and there were no disfiguring or hypertrophied scars.

The superior points of the tannic acid-silver nitrate treatment of burns may be listed as follows:

1. The saving of lives that would be lost through the slower method of tanning.
2. The immediate stopping of the loss of body fluids, thereby preventing the consequent concentration of the blood.
3. The immediate prevention or very definite minimizing of shock.
4. The immediate prevention of the absorption of toxic products.
5. The prevention of infection by the short period of application of moisture and the early drying of the tanned tissues.
6. The saving of the kidneys and other organs from the effects of fluid concentration and the absorption of toxins and infection.



Fig. 7. Case 3, L.V.E. Age eighteen months. Burned areas properly tanned with tannic acid and silver nitrate. All healed on twenty-first day except small area near umbilicus.



Fig. 8. Case 3, L.V.E. Burned areas of back tanned and dry. Patient in electric light heated tent.

7. The greater comfort of the patient.
8. The patient is safely carried past the first twenty-four hours which is the most critical period following a serious burn.
9. The patient avoids the second critical period, that of infection and late absorption of toxic products.
10. The simplification of the nursing problem, especially in the first twenty-four hours.
11. The prevention of further breaking down of tissues which results from long application of wet dressings.
12. The prevention of chilling which also results from the long application of cold, wet dressings.
13. The formation of a thin, flexible coagulum.
14. The speedy healing of the burned areas with a shortened period of hospitalization.
15. The prevention or minimizing of heavy contracting scars by early, rapid healing in the absence of infection.
16. The lessening of the amount of skin grafting and secondary corrective surgery necessary.

ARACHNIDISM

BLACK WIDOW SPIDER POISONING *

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Every year cases of spider bite requiring medical attention are reported in one or more sections of the United States. The term "arachnidism" has come to be applied by clinicians in this country to describe such cases associated with the bites of the notorious "Black Widow" spider, *Latrodectus mactans*, although in its broader sense, the term could equally well include the occasionally reported cases of scorpion sting in the South.

There is among most laymen an instinctive fear of any kind of spider, particularly the much feared "banana" spiders, and the larger tarantulas and trap-door spiders, sometimes seen in the desert regions of the Southwest. In the Middle Ages "tarantism," or fear of spider bites, amounted literally to a mania in southern Europe and a patient was supposed to be most effectively cured by vigorous and long continued dancing to the tunes of very animated music. Hence the present term "tarantelle" for that type of musical piece.

Experiments of many investigators have failed to show grounds for fear of most species of spiders, regardless of their size, as capable of poisoning or inflicting serious wounds in people. Undoubtedly a great deal of exaggeration has occurred in the press with regard to the potentialities of spiders for inflicting injuries, and a good many reports of mysterious or obscure illnesses have been ascribed to spider bite without possibility of confirmation.

On the other hand, it is a repeatedly established fact that the several species of the spider genus *Latrodectus* are capable of causing serious systemic poisoning by their bite. Such injurious species are known in southern Europe, southeastern Russia, New Zealand, Australia and the Philippines, where they have become ill reputed under various descriptive and colloquial names. Ample observations appear to confine arachnidism in this country to bites of but one species, *Latrodectus mactans*, although another member of the genus, *L. geometricus*, a gray species, has been reported from California.

DESCRIPTION OF SPIDER

The adult female *L. mactans* is the spider usually

encountered. It is a shiny, coal black, very round-bodied species in contrast to the rather compressed form of most spiders. The underside of the abdomen is usually more or less conspicuously marked with red in the shape of an hour glass, giving it the other popular name of "hour-glass spider." In occasional specimens this red spot may be so dark as to be hardly discernible; in others it may fade to a yellowish color. The abdomen of mature, well fed specimens has about the appearance of a large, shiny, black currant, (or shoe button, another locally used name), perhaps three-eighths of an inch in diameter in well fed specimens (figs. 1, 2, 3. Photographs by R. A. Cooley).

Due to cannibalism, the males are almost never seen about the webs occupied by the females; it is to the habit of eating its mate that the female owes its name of "Black Widow." The males are little more than half the size of the full grown females, and in addition to a whitish (instead of red) hour glass spot ventrally, the abdomen of the male is marked above with a longitudinal and six oblique, lateral, whitish dashes with pale brown intervals; they entirely lack the shining "patent leather" black characteristic of the female. The whole aspect of the male is, therefore, one of a very different spider except for the characteristic rounded, slightly elongated abdomen. The younger stages of both sexes show more or less similar markings to those of the male on the dorsum of the abdomen but are entirely pale above with six black dots arranged in two rows in the very young instars (figs. 4, 5, 6).

DISTRIBUTION

Latrodectus mactans apparently occurs throughout most of the United States and up into the middle and western Provinces of Canada, although it has been considered a typically southern species. The writer has taken it in the northwestern states of Washington, Idaho, Montana, western North and South Dakota, and Wyoming, and it has been reported to the east and north in Michigan, New York and New Hampshire.** Repeated observations of the writer in the eastern half of the Dakotas and in northwestern and southwestern Minnesota, failed to reveal its presence. The Royal Ontario Museum of Zoology has kindly furnished information of collections by Mr. T. Kurata in northern and southern Ontario, northern and southern Manitoba, northern and presumably southern Alberta, and southern British Columbia.

That some of the western tribes of Indians were

* From the Rocky Mountain Laboratory of United States Public Health Service.

** Read before the Montana Public Health Association, Helena, Mont., July 10, 1934.

** Information from the Museum of Comparative Zoology of Cambridge, Mass., includes two records of collections in Maine.



Fig. 1.

Fig. 2.

Fig. 3.



Fig. 4.

Fig. 5.

Fig. 6.

- Fig. 1. Mature female ventral view (x2).
 Fig. 2. Mature female, lateral view (x2).
 Fig. 3. Female in web, showing characteristic zig-zag effect.
 Fig. 4. Mature male, dorsal view (x1½).
 Fig. 5. Spiderling (x7).
 Fig. 6. Egg case (slightly enlarged. The pointed end should be above).

acquainted in the early days with the poisonous qualities of this spider is a matter of record. They are supposed to have crushed the spiders in small bowls and to have dipped the tips of their arrows in the mixture.

HABITS

About residences, the spider builds its web in dimly lighted places, such as garages, outhouses, basements or obscure corners of sheds, barns and other frame structures. Numbers have been taken in buildings during the course of construction in western Montana; occurrence of "nests" in rock gardens has caused concern among city residents in southern Oregon. In several states of the Northwest, interstices in piles of rock and the mouths of deserted rodent burrows have been observed as favorite locations out-of-doors because of the presence of flies and small prey seeking shelter. Lawson

records them commonly in cactus clumps in Kansas.

The web is an irregular, tangled mass of strands running in all directions and never shows the flattened geometric design of the orb-weavers which pleases the eye on a morning of heavy dew in the garden. A funnel-shaped tube of coarse webbing may be seen leading generally into the web from some nearby crack or crevice, in which the spider seeks concealment, to appear at the least disturbance in the web.

Lawson¹ reports the construction in confinement of from four to nine egg pods or cases during a season. In the field in early July as many as four cases have been observed at a time in one web, hung balloon-like in the upper portion. Each case contains an average of between 400 to 700 eggs. Two to three months are required to complete development in the laboratory under optimum conditions, the spiderlings passing through seven or eight molts. Hibernation appears to occur in the adult stage, based on a few observations of mature females seen in buildings in the winter time and early spring in western Montana. However, Jellison and Philip² report taking specimens not yet mature, deep in rodent burrows in November after the ground had frozen, and they suggest this to be a natural place of hibernation.

Food habits do not differ essentially from those of other spiders. On the other hand, the Black Widow does appear to have a more virulent, paralyzing effect on the prey and its actions are consequently more aggressive in biting the victim. Frequently, little effort is made to wrap the prey with web following ensnarement, although a few strands may be used to secure it, many of the spiders preferring to stand by after biting an appendage or exposed part of the victim until its struggles have ceased. This apparent reliance on its venom to paralyze its prey and its readiness to bite anything disturbing the web not too violently may explain its seeming aggressiveness or the relative frequency of reported bites of persons compared to the

1. Lawson, P. B., 1933. Notes on the Life History of the Hour-Glass Spider. *Ann. Ent. Soc. Amer.*, 26:268-274.

2. Jellison, W. L. and Philip, C. B.: Note on the biol. of the Black Widow Spider, *L. mactans*. *Science*, 81:71-72, 1935.

lack of authentic reports of attack by other spider species.

Experimentally at least, most Black Widows appear to bite test animals with considerable reluctance, possibly because of isolation from the web. Little more than local reaction to the venom has been shown by monkeys and guinea pigs exposed to bites or subcutaneously inoculated with triturated "poison glands" of Bitterroot valley specimens.

SYMPTOMS

Persons bitten frequently report a sharp, stinging or momentary prick, followed immediately or within a few minutes by progressively spreading pain, increasing in severity to a maximum in little over an hour in most cases. The pain at this time is described as excruciating or agonizing and commonly continuous but occasionally cramp-like or intermittent; it is manifested by writhing, doubling up and screaming or moaning. The pain appears to center in the abdominal muscles giving the characteristic *board-like rigidity* of the abdomen, as in general peritonitis. Muscle spasm of other parts of the body are often concomitant, especially over the back and chest. A mild rise of body temperature, increased blood pressure, occasionally slow pulse and definite leucocytosis may be expected. Hospitalized cases have provided records of profuse perspiration, restlessness, difficulty in breathing, nausea and vomiting, localized edema, and occasionally constipation or retention of urine. Increased pressure of the spinal fluid has been reported.

Fortunately, spider bite poisoning is self-limited and, in the majority of instances, symptoms spontaneously disappear in the course of a few days. Authentic reports of fatal cases are on record, however, and the condition is serious enough to warrant immediate medical attention or hospitalization where suspected. In fatal cases, death usually occurs in from fourteen to thirty-two hours. The symptoms of arachnidism should be kept in mind so as not to confuse them with acute, surgical abdominal conditions such as acute appendicitis or peritonitis, and the consequent futility of needless exploratory operations. Bogen³ has stated "much suffering and even fatalities are due to injudicious treatment rather than to the venom itself."

Questioning of patients showing the above symptoms, will frequently aid diagnosis by eliciting information of a definite "insect bite" or of exposure

in a likely situation, such as an outdoor toilet a short time previous to onset.

TREATMENT

Treatment is chiefly symptomatic. A review of the literature reveals a wide variety of reported therapeutic agents, the real value of which is difficult to determine in a self-limited malady of this nature. Palliative treatment to alleviate the acute pains is frequently only partially effective; administration of opiates or hypnotics is usual. Additional relief by hot baths and compresses may be affected. Relief of the increased spinal fluid pressure by spinal puncture is advised by Bogen who also has used convalescent serum in acute cases with indications of earlier relief and subsidence of symptoms than in untreated cases. Stimulation and alcoholic drinks are contraindicated. Local treatment of the bites should be made by application of antiseptics without additional traumatization of the area.

DeAsis⁴ reports quick relief of symptoms of spider bite poisoning in the Philippines due to *Latrodectus hasseltii*, by the intravenous administration of sterile 25 per cent magnesium sulphate solution. While the symptoms following bites of these two species are not entirely identical, DeAsis' results appear to warrant trial of this method of treatment in this country. Press reports have indicated the development of an antiserum in Colorado during the past year, but the difficulty of reproducing constant symptoms in experimental animals makes evaluation of such a serum difficult.

PREVENTION

Until recent years the majority of cases of spider bite poisoning have been in rural areas, but the increase in number of persons bitten in their city homes or other urban situations makes advisable popularization of descriptive information and the necessity for observation in known infested areas. How much of the recent growth in popular attention to this species has been due to increased notice in the press rather than to actual increase in numbers of the spiders and occupation of new territory cannot be stated. Certainly field observations of the spiders in the Northwest show it to be in considerable abundance in suitable locations.[†] Bogen records observation of nineteen cases in a single hospital in one season in Los Angeles. The dispro-

4. DeAsis, C., 1934. "Red Back" Spider Bite and Magnesium Sulphate Treatment. Clinical Study of 4 Cases. *Amer. Jour. Trop. Med.*, 14:33-44.

[†] A note by Milzer (*Science* 80:403) has just been received calling attention to their unusual abundance in Colorado and adjacent states.

3. Bogen, Emil, 1926. Arachnidism. *Arch. Int. Med.*, 38: 623-632; Poisonous Spider Bites, *Ann. Int. Med.*, 6:375-388, 1932.

portion of spider bite cases in the Southwest compared to Northwest cases is to be remarked in this connection; explanation apparently rests either on differences of virulence of, or on amounts of personal exposure to (continuous abundance of) local spiders, and some evidence is available in support of either contention.

The greatest incidence of cases at present is in men without relation to age, and a frequent location of the bite has been about the genitals of persons using outdoor toilets. Policing of infested premises, i. e., destruction of webs, egg cases and spiders, together with personal observation to avoid exposures are obvious precautions. Spraying with oil has been resorted to on occasions and the use of household fly sprays has been effective under certain conditions. Efforts are being made to discover a parasite or predator which will be an aid in checking the spider menace, but it should be emphasized that most species of spiders, far from being harmful, are actually beneficial and that destruction of webs of orb-weavers, or garden spiders producing symmetrical webs, is unnecessary.

FOREIGN PROTEIN THERAPY

ITS PRESENT STATUS IN OTORHINOLARYNGOLOGY *

E. A. Woods, M.D.

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Proteins form the substance of the living body of plants and animals and exist in every cell. All protein contains C, H, N and O, and some S and P.

The protein molecule is large and complicated, being 4870 times as large as the hydrogen molecule. The molecular weight of gelatin is 10,000, fibrin 42,000, hemoglobin 50,000, casein 192,000.

The simple proteins include albumins, of which serum albumin is an example; the globulins, the albuminoids, which as elastin, collargin and karatin make up most of the supporting structures and the skin; histones which are found in gland cells, and protomines which occur chiefly in the sperm cells.

Simple proteins are composed only of amino-acids. The conjugated proteins are combinations of proteins with a nonprotein element, such as the mucoproteins used for lubrication of the food and air passages which include a carbohydrate group. The chromeoproteins (various colored bodies), such as hematin and the nucleoproteins, are combinations of proteins and nucleic acid.

The properties of the various proteins depends on the particular amino-acid present, and the way

they are linked. The presence of an amino (NH_2) and a carboxyl group (COOH) in the amino-acid, gives to the body proteins their property of combining with both acids and bases in the tissues, so they may act as buffers, and in conjunction with the inorganic salts present, keep the body fluids to a reaction near enough to neutrality to support life.

The harmful effects of bacterial infections are due to split products of proteins formed in the bacteria themselves, or from tissues which the bacteria attack. The split products, histamine and other peptides and amino-acids are extremely toxic, and successful resistance to infection depends on the ability of the tissues to dissolve the bacteria, and break down their toxic products to simpler nontoxic forms.

In certain diseases specific antibodies are formed, which bind the toxins, agglutinate the bacteria, or make them susceptible to phagocytosis. A chief means of defense in any infection is the production of enzymes, protease and ereptase, which break down the foreign protein and its split products. The tissues are prevented from lysis by a form of enzyme, antiferment, which is present in the serum and is increased during infection.

Injection of a foreign protein produces an immediate decrease in this antiferment and a marked increase in the enzymes, protease and ereptase. Necrotic tissue and bacterial cells are broken down, first into split products which are toxic, resulting in symptoms of increased temperature, malaise, etc. The toxic products then split again into simpler nontoxic forms and the temperature drops. Any specific antibodies already formed in the cells and attached to them are thrown into the circulation, where they exert their specific effects. According to Peterson the primary leucopenia which occurs after injection is due to a collection of blood cells in such organs as the spleen, where the bacteria are especially numerous. This is followed by a leucocytosis which is important in fighting the infection.

It was found that the increase of enzymes in the serum lasted three or four days, so the best results were obtained when injections were given with an interval of four free days. Wick found that leucocytosis may be found without fever. Peterson says that leucocytosis is only one of the phenomena, which with fever, mobilization of enzymes, increased cell permeability and vasodilatation, represent a "stimulation whereby all the humoral and cellular factors of resistance are keyed to the very highest pitch." He believes that a general reaction must

* Read before the Sixtieth Annual Meeting of Oregon State Medical Society, Corvallis, Ore., Sept. 27-29, 1934.

be produced in order to obtain any therapeutic effect.

Ferdinand Hoff gives the following table of reactions following the injection of foreign proteins:

First phase, one-half hour after injection:

1. Rise in temperature.
2. Leucocytosis (myelocytes).
3. Decrease in alkali reserve (acidosis).
4. Increase in basal metabolism.
5. Increase in albumosis.
6. Increase in blood sugar.
7. Decrease in cholesterin in the blood.
8. Hyperactive sympathetic nervous system.
9. Increase in thrombocytes (blood platelets) and their destination.

Second phase, two hours after injection:

1. Drop in temperature.
2. Drop in leucocytosis with a tendency to a lymphocytosis.
3. Increase in alkali reserve.
4. Minus basal metabolism.
5. Less albumosis in blood.
6. Decrease in blood sugar.
7. Increase in quantity of cholesterin.
8. Hyperactivity of the parasympathetics.
9. Thrombocytes return to their normal proportions.

Clark's summary of changes in protein therapy:

1. Leucopenia followed by leucocytosis.
2. Increase in young and atypical erythrocytes and platelets
3. Increase in fibrinogen.
4. Increase in globulin.
5. Increase in thrombokinas.
6. Increase in blood sugar.
7. Increase in nonprotein nitrogen content.
8. Increase in proteolytic ferments.
9. Increase in permeability of the cell membranes and capillaries.

Foreign proteins may be given intravenously, intramuscularly, intracutaneously or subcutaneously. The cutaneous route is advocated by many, but it is obvious that only small quantities can be given that way. The intervals at which injections are made should be properly spaced; if too long apart there is danger of anaphylactic reactions; and if too close together, symptoms of intoxication appear, and more harm than good will be done, although there is less danger of anaphylactic reactions than with the specific desensitization.

The focal reaction after injecting a foreign protein is also important. There may be considerable swelling at the site of injection, especially in certain bacterial vaccines, but in the majority of substances that are employed very little local reaction is found.

Some of the prepared proteins are claimed to produce no fever, such as aolan, lactigen and omnadin, and still have some beneficial effects. Miller¹ states

he has noticed that, when the patient fails to react by a rise in temperature, there is no change in the course of the disease.

A large number of preparations have been used in nonspecific protein therapy. Beck² gives the following list: milk, and milk preparations and other substances, (1) caseosan, (2) aolan, (3) novoprotein, (4) phlogentan, (5) terpichin, (6) omnadin, (7) caseal, (8) lactosan, (9) yatren, (10) yatren-casein, (11) strepto-yatren, (12) stomasin of centanni, (13) alfasol (a vegetable protein), (14) cutivaccine, (15) tuberculin, (16) typhoid bacilli.

Beck makes the statement that it is the belief today that, as the result of even specific sera or chemicals such as neosalvarsan, mercury, quinine, etc., foreign proteins develop in the system, and through their specific antibodies destroy bacteria, protozoa, or neutralize the toxemia, thus curing the disease. Even physical agents such as radiation, roentgen ray, radium, quartz light, etc., cause foreign protein to develop.

This list is given by Law.³

1. Blood serums: a. normal human or horse, sheep, ox, goat or chicken; b. antitoxic, such as antidiphtheritic, antistreptococcic serum, etc.; c. fluid from blisters, pleural effusions, cerebrospinal and joint fluids.
2. Milk (cow's) and preparations made from milk such as aolan, caseosan and lactogen.
3. Tissue extracts both human and animal, such as spleen extracts, tumor extracts, autolysates, and skin scale extracts.
4. Vegetable extracts, such as pollen extracts, seed extracts (millet and alfalfa).
5. Bacterial proteins of all kinds, such as nonspecifically used vaccines and tuberculin of all kinds, pure or in mixture, Coley's fluid.
6. Split proteins, such as proteoses, deutoalbumoses and peptones.
7. Chemicals, such as turpentine, injected so as to produce a "fixation abscess," causing a breaking down of tissues, and by absorption a protein shock effect.
8. Artificially induced diseases, for example, malaria.

The most generally used agents are whole milk and typhoid-paratyphoid vaccine. Barkan⁴ has shown that the shock-producing properties of milk depend mostly on the bacterial content. Therefore, certified or pasteurized milk is less valuable than the poorer grades of milk. Pasteurized milk, which has been incubated from four to six hours, thus raising the number of bacteria, is valuable in producing shock. Such milk is boiled four minutes, cooled and injected intramuscularly. This amount of heat does not kill the spore-bearing, but does kill the nonspore-bearing organisms which might cause abscesses.

2. Beck, J. C.: Nonspecific Protein Therapy in Nose, Throat and Ear Affections. *Laryngoscope*, 41:119-124, Feb., 1931.

3. Law, R. C.: The Use of Nonspecific Protein Therapy.

1. Miller, J. L.: Present Status of Nonspecific Therapy. *J. A. M. A.*, 95:464-468, Aug. 16, 1930.

The spore-bearing organisms do not seem to be pathologic when injected. Injecting 1 to 2 cc. of milk into the new-born infant almost always raises the temperature to 100-103° F. An adult should receive 8 to 10 cc., increasing the dosage according to the reaction, repeating every third day. One should wait until the patient is free from fever for twenty-four hours. If the blood count is watched, it is best to wait until it has returned to normal for twenty-four hours. After two or three injections the reactions become less and it is not necessary to give more than four or five injections. Care must be taken not to introduce milk into a blood vessel or fat embolism may result.

When typhoid-paratyphoid vaccine is injected intravenously, there is much less pain than when milk is injected intramuscularly with the local reaction which follows. The dosage of intravenous injections of typhoid-paratyphoid should be much less than if given subcutaneously. Thirty million organisms are enough to start with; it will produce a temperature of 100 to 101° F. as a rule. The dosage may be increased in further injections, 40-50-60 or 70 million, depending on the injection. Some use as high as 100 million, but this is seldom necessary. Of course, for children the dose is correspondingly smaller and the vaccine is never given to infants.

The ordinary vaccine contains 1000 million organisms per cc. A small quantity of this may be drawn into a tuberculin syringe and diluted with normal saline solution until the desired amount is obtained. Give about the same number of injections as with milk, and space the injections the same.

Schur made observations after the use of typhoid vaccine as a means of treatment, which indicate that caution should be used in its administration. He reports a case of agranulocytosis with severe myeloid reaction in the blood and spleen, which developed after treatment with typhoid vaccine. He found five other reports of changes in the blood after such treatment. One was a temporary thrombopenia and hemorrhagic diathesis. The second was a mixed lymphatic and myeloid reaction. The third was a chronic lymphatic leukemia, the fourth a chronic myeloma, and the fifth a case of agranulocytosis. He also found a report of two cases of neutropenia and lymphatic reactions following paratyphoid injections.

Shaheen⁴ reports his experience in treating twenty-

seven cases of middle ear suppuration by the subcutaneous injection of boiled milk. "A change is soon noticed in the quantity, odor and nature of the discharge. In some one injection has sufficed to stop it, and in others this result has been obtained after a few injections. Granulations shrink and the perforations may heal." No local treatment to the ear is carried out other than the occasional drying out with cotton wool.

The injections have been employed with favorable results after the radical mastoid operation, and when there has been a persistent sinus.

Martini⁵ conducted five series of experiments with protein and vaccine therapy in cases of otorhinolaryngology; no other treatment was given. One hundred and two cases were treated with lactosan injected into the deltoid; the injections were painful, with both general and local reactions. Seventy-two (70.59 per cent) resulted favorably, thirty (29.41 per cent) no results. The good results were in acute catarrhal and acute follicular tonsillitis and chronic purulent affections of the middle ear. Better results were obtained in acute infections of the middle ear than in the chronic. No results were obtained in ozena or peritonsillar or pharyngeal phlegmons.

Fifty-one cases were treated with alfasol (a vegetable protein); 49.03 per cent had no results, particularly ozena, peritonsillar phlegmon and chronic maxillary sinusitis.

Thirty-eight cases were given antityphoid vaccine of Dessy; it was prepared from forty different strains of bacillus from as many patients. Injections were made intravenously. There was a local or general reaction in thirty-two cases. One had very good result, seven good, five mediocre, twenty-five no results. It was of no value in peritonsillar phlegmon or chronic maxillary sinusitis.

Thirty-three cases were given polyvalent antipyogenic vaccine of Dessy (composed of staphylococcus aureus and albus, streptococcus, diplococcus, pneumococcus, bacillus pyocyaneus, bacillus coli and micrococcus tetragenus). Four gave very good results, fourteen good, two mediocre, thirteen no results. It had no value in peritonsillar phlegmon or retroauricular adenophlegmon. Thirty-one cases were treated with autovaccine. One case very good, seven cases good, eleven mediocre, twelve negative. Lactosan proved to be superior to the other proteins used in this five series of experiments.

4. Shaheen, H. B.: Treatment of Chronic Suppuration of Middle Ear by Subcutaneous or Intramuscular Injection of Boiled Milk. *J. Laryng. & Otol.*, 44:27, Jan., 1929.

5. Martini, A.: Experimental Protein and Vaccine Therapy in Cases of Otorhinolaryngology.

Vallery, Radot, Blamoutier and Giroud⁶ treated more than one hundred cases of hay fever, asthma and spasmodic coryza by injecting intradermally a concentrated solution of peptone (50 grams of peptone dissolved in enough distilled water to make 100 cc.; this was neutralized, sterilized and placed in ampules). This solution is thick and brown in color; it is ten times stronger than the peptone usually used for subcutaneous injections; .1 to .3 cc. was injected into the skin of the deltoid or thigh daily, until twenty injections were given. They all had more or less local and no general reaction.

Sixty-two hay fever patients were treated who had tried various kinds of treatment without success. In forty-two the symptoms disappeared or were diminished after twenty treatments. In ten the results were less satisfactory, five no change, five were lost track of or disappeared before treatment was complete. Two patients were relieved of hay fever after the first injection. The long sufferers of hay fever showed the less favorable results, some suffering as long as thirty years.

Thirty patients were treated for asthma. Nineteen improved and some cured, six slight improvement, five no effect. It took from three to twelve injections before improvement was noticed. The best results were in patients with no pulmonary or bronchial lesions. The results were not permanent as attacks reappeared in from one week to four months.

Thirteen patients were treated for spasmodic coryza (attacks of morning sneezing accompanied by profuse hydrorrhea, occurring several times during the day). Spasmodic coryza may appear at any season and has many different causes of sensitization. In six symptoms disappeared completely, five improved, two no improvement. One woman who had suffered for twenty years was relieved of symptoms after the second injection. In some cases the symptoms reappeared after several weeks, but disappeared after further treatment.

Eighteen patients were treated for hay fever and asthma. Injections relieved the asthma before the hay fever. Later the hay fever was relieved.

Sixteen patients who received treatments for hay fever, asthma or spasmodic coryza had blood examinations every ten minutes after the intradermal injections. Twelve had a hemoclastic crisis, appearing ninety minutes following the injection. The decrease in leucocytes ranged from 1700 to 3100. One patient had a decrease in blood pressure from

140 to 115. Patients who had a hemoclastic crisis were those who improved by the intradermal injection of peptone. Nine controls were given intradermal injections of peptone with no modification in the number of leucocytes.

Schiff reports favorable results with the employment of a 50 per cent aqueous solution of peptone, administered intradermally. He states that in some cases practically all symptoms disappeared after the second or third dose. Vaughan claims some success with the peptone intradermal therapy. Beckman⁷ says, "nonspecific protein in the treatment of hay fever is much favored in Europe, but in North America it has not given results at all comparable with those obtainable by the use of the specific pollen substances."

Grande⁸ gives his experience with stomasin of Centanni and other foreign proteins in the treatment of otorhinolaryngologic conditions. He thinks stomasin more valuable than the injections of sterilized milk, caseal or caseosan, all of which he tried in a number of cases of complications of affections of the ear. He found the reactions from the intramuscular injections of boiled milk were intense and painful. In two cases the temperature rose to 104.4° F., and the reaction lasted several days. Caseosan gave only slight general and local reaction, but did not produce as good results as some of the other preparations. When calcium caseal was used early in mastoid complications, rapid resolution was obtained in all cases.

Stomasin was used with excellent results in the treatment of acute mastoid periostitis, as is so often seen in children. The staphylococcus stomasin has a decided advantage over the autogenous vaccine in circumscribed external otitis. Good results were obtained with stomasin therapy in both the acute and chronic otitis media. In the serous forms, one or two intramuscular injections bring desired results. In acute suppurative forms it is always necessary to perform a paracentesis, but the use of stomasin insures a good postoperative course.

Simple chronic otitis with nonfetid and fluid pus, which stubbornly resists other forms of treatment, retrogresses and heals completely when stomasin is used. When granulomata, polyps, cholesteatoma or osteitis exist, it will be useless to try this therapy. Both caseal and stomasin were tried in some cases of maxillary and frontal sinusitis. Results were evident in both the acute and subacute cases, but the

6. Vallery-Radot, Blamoutier, P. and Giroud, P.: Treatment of Asthma, Spasmodic Coryza and Hay Fever by Intradermic Injections of Peptone Solution. *Presse Med.*, 33:1649-1651, Dec. 16, 1925.

7. Beckman, Harry: Treatment in General Practice. W. B. Saunders Co., Philadelphia, 1934.

8. Grande, C.: Nonspecific Protein Therapy and Stomasin Therapy in Otorhinolaryngology. *Valsalva*, Milano, 1:18-24, 1925.

chronic were not influenced, even when injected intravenously. Some inflammations of the tonsils and pharynx, and affections of the larynx were relieved by inhalations of stomasin. Fourteen patients suffering with ozenous rhinitis were treated by stomasin therapy with unsatisfactory results.

The contraindications to the use of protein therapy are syphilis, alcoholism, chronic myocardial changes and advanced arteriosclerosis, or when the powers of reaction are exhausted. Diabetic cases should be carefully watched when under this treatment. Pulmonary disease, especially tuberculosis, may show focal reactions, so care should be exercised in these cases. Marked degrees of focal infections may also be aggravated by nonspecific injections. Bone infections do not respond to vaccine treatment readily. Old age and infancy, if the general condition is good, are not contraindications. Nonspecific therapy should not replace surgery, or specific therapy where that is possible.

RESUSCITATION OF THE ASPHYXIATED

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How long after apparent death by drowning, electric shock or other forms of simple asphyxiation can resuscitation take place? And in the methods of restoring respiration and circulation proposed and carried out up to the present time, have we taken into consideration all of the possible factors which tend to retard or prevent success? I believe we have not.

Recently I have correlated several experiences and observations of diverse nature which give me reason to believe that we have been overlooking one of the most important factors in the resuscitation of the asphyxiated, namely, that of blood supply and blood pressure in the medulla oblongata. The centers of respiration and circulation are in the medulla, and in order that the mechanism of the heart and respiratory muscles may function, that important part of the central nervous system must be assured of an adequate blood supply and a certain amount of blood pressure in order that its capillaries may be well filled and other local conditions may approach normal as nearly as possible.

We have known for a long time that in the asphyxiation of the new-born the first thing to do is to invert the child so that blood will flow to its brain. Flagellation is probably of little importance, but I am of the opinion that in some cases of failure, if the child had been kept inverted for a longer period of time or had been placed on a steep

inclined plane with the head considerably lower than the body while the other procedures were carried out, there would have been a greater prospect of success.

We all know that in cases of severe hemorrhage, with extreme pallor and almost or quite imperceptible pulse, syncope may be prevented by elevating the foot of the bed so that the remaining blood will flow toward the head and restore a certain amount of blood pressure in the medulla. In a recent case of childbirth attended by the writer, the hemorrhage was so severe that it was necessary to elevate the foot of the bed two feet and keep it in that position for over an hour while salines and other restorative measures were resorted to.

When I was a boy, one day, while my brother and I were strolling along a creek which flowed through our father's farm, we came upon a woodchuck in a small tree overhanging the creek bank. We had had a notion for some time that we would like to capture one of these ferocious little animals and make a pet of him and this seemed like a good opportunity, for by first partially drowning we felt that we might be able to handle him. Taking a long pole we pushed him into the creek and held him under water with it until he was quiet. But getting him out of the water quickly proved more of a problem than we had anticipated for the water was about eighteen inches deep and the bank perpendicular and about four feet high. We decided that one of us would go down the bank head first and seize the animal while the other hung onto his feet and pulled both boy and woodchuck out.

The woodchuck is not an aquatic animal and by the time we were ready to take him out of the water more than ten minutes had elapsed and he was quite thoroughly drowned, lying on his back on the bottom of the stream. We knew little about first aid, but we had to get the water out of him if he was to revive, so we held him up by his hind feet to accomplish this purpose. No means was employed to restore respiration, but we found that, after holding him in this position for about five minutes while the water was escaping, he gradually began to make efforts to breathe and in a short time respiration was completely restored.

Later in life, as I observed the benefits of inversion in the resuscitation of asphyxiated babies and the saving of patients following very severe hemorrhages by elevating the foot of the bed, this childhood experience was recalled and I began to wonder if perhaps we were not overlooking a very important detail in the resuscitation of drowned or

otherwise asphyxiated persons. It seems to me that, if all such persons were placed on a steep inclined plane or some makeshift which would lower the head and shoulders considerably below the level of the remainder of the body and this position were to be maintained while resorting to the customary restorative measures, such as artificial respiration, until success or failure was apparent, the prospects of success would be greatly enhanced. In the case of drowning, other advantages would accrue, since the patient could be placed in this position and artificial respiration resorted to at once with the assurance that the water would take care of itself and, the patient being in the prone position, the tongue would fall forward and not interfere with inspiration.

To take a drowned person out of the water and after perfunctorily draining his bronchial tree for a few moments, place him in the prone position and begin artificial respiration without making any further provision for further drainage and, more important, without providing for the restoration of a good supply of blood and a certain amount of blood pressure to the medulla by means of gravity, seems to me to be a very unscientific procedure in view of the facts we have before us. The same reasoning applies to those asphyxiated by other means.

MULTIPLE SCLEROSIS

REPORT OF CASE IN BOY OF FIFTEEN*

CLARENCE A. VEASEY, SR., M.D.

SPOKANE, WASH.

While multiple sclerosis occasionally has its initial appearance in early childhood, it is rather unusual to find symptoms so far advanced as in the following case:

A. B., aged 15 years, was first seen two years ago and refracted. He had been wearing glasses for four years, obtained from an optician, and was wearing hyperopic glasses, when as a matter of fact he was myopic. The examination at that time (two years ago, at the time the boy was thirteen years of age) showed optic nerves distinctly paler than normal in the outer halves and normal in color in the inner halves. His fields of vision for form and color were both contracted. On the tangent screen both blind spots were *outside the fields*. There was no interlacing or reversal of color fields, and no corneal anesthesia. An examination a few days later with the tangent screen showed small tubular fields and a repetition of the previous findings. The knee jerks were perhaps slightly exaggerated, and there were distinct choreic movements of the head and lids and shoulder. The nose was negative, the tonsils infected, and the latter subsequently removed.

There was no family history of sclerosis. The father is a quiet, well nourished, unexcitable, healthy individual. The mother has an inoperable goiter, is very high-strung, ner-

vous and irritable. An only brother has at times had muscular twitchings in the face as in habit chorea, but these are not always present.

An examination about a week later showed the fields to be slightly contracted only, the blind spots on the tangent screen practically normal. With his glasses he had 6/6— in each eye and read Jaeger 1 easily at fourteen inches.

The patient remained in fair condition so far as known for some time and then became more and more nervous, had a marked tendency to choreic movements which were present at times and not permanent, was quite depressed, and thought that he was unable to see well. After suggestive treatment including galvanism to both eyes for a short period (which was simply a placebo), the patient again read 6/6— with each eye. At no time was there any corneal anesthesia.

During the next two years the patient came in from time to time, complaining of inability to see well, but with some suggestive treatment and placebos his vision was improved. During this period the temporal halves of the optic nerves continued pale, the nasal halves retaining apparently normal color. At no time were any scotomata found.

When the patient was seen the latter part of January, 1934, his vision was 6/6 in each eye.

During the past summer the patient was taken to an optician in town who gave him three pairs of glasses, including a pair of bifocals, but the latter part of September he was again brought to me, and his vision found to be as follows:

O.D.V. without glasses, 6/15

O.S.V. without glasses, 6/30

O.D.V. with glasses, 6/15 J.14 at 10 inches slowly

O.S.V. with glasses, 6/12+ J.4 at 10 inches slowly

The outer halves of both optic nerves were even paler than at last examination, that of O.D. being more marked than O.S. There was a slight horizontal nystagmus in O.D. Under homatropine his correction was as follows:

O.D.V. —S.50D $\odot$ —C.50D ax 30° 6/12— very slowly

O.S.V. —S1.75D $\odot$ —C.25D ax 165° 6/9+

The slight horizontal nystagmus of O.D. was present at all times, but was present when attempting fixation. The nose was negative. The visual fields were contracted for form and color. In the right eye there was a complete reversal of the red and green fields. In the left eye there was no reversal but an overlapping in about two-thirds of the extent of the red and green fields. There was a para-central relative scotoma for green temporally in each eye. An examination of the urine showed a very faint trace of albumin, but otherwise negative. The blood and spinal Wassermanns and colloidal gold curve were negative.

Suspecting the condition might be one of early multiple sclerosis, he was referred to Dr. Austin J. O'Leary for neurologic examination. He found the abdominal reflexes present, but some weakness of one ankle, and he thought that perhaps the jerky method the boy had of speaking might be a beginning scanning of speech. He felt that the case should be watched for a time before establishing the condition positively, but it is his opinion that it is one of multiple sclerosis, and this opinion he subsequently confirmed.

It is certainly unusual to find this condition so far advanced in the eyes at thirteen to fifteen years of age, and there was, of course, the hysterical element which is so frequently found in conjunction with multiple sclerosis that had to be given consideration. The vision is becoming progressively worse and the prognosis is certainly unpromising. 1569 Paulsen Medical & Dental Bldg.

* Notes read at a meeting of the Spokane Academy of Ophthalmology and Otolaryngology, Spokane, Wash., Oct. 23, 1934.

NORTHWEST MEDICINE

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Oregon, Washington and Idaho

Devoted to the Interests of the Medical Profession
of the Pacific Northwest

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FEBRUARY, 1935

EDITORIAL

PUBLIC HEALTH STATISTICS

The Surgeon General's report covering the year 1933, which has recently been released, presents some very encouraging statements pertaining to the general public health and well being of our country. During that year the death rate was the lowest ever recorded, being 10.5 per 1000 population, compared with 10.8 for the previous year. The birth rate also continues to decline in the United States. In 1933 it was 16.4 per 1000 population, compared with 17.4 for 1932. At the same time, however, the death rate among infants is on the decline. In 1933 there was one death for every 17 births in the first year of life, compared with one in every 10 in 1915.

Also the tuberculosis death rate continues to decrease. For 1933 this was 59 per 100,000 population, being 5 per cent below the previous minimum. The typhoid rate was also the lowest on record, being 3.5 per 100,000, which was 8 per cent below the previous minimum. Likewise the diphtheria rate of 3.9 per 100,000 is the lowest ever recorded by the Public Health Service.

Our country has not yet reached the condition of some European countries which did not have a single case of smallpox in 1933. Among all the countries of the world keeping vital statistics, there were 75,000 deaths from this disease. Less than 40 of these occurred in the United States, where 7000 cases were reported. Fortunately, we were free from deaths due to cholera and plague. Cholera was confined to Asia with 48,000 deaths, while plague was the cause of 50,000. This disease appeared in all great land divisions of the world except Australia, two cases having been reported in California, where it is said the disease smoulders in the ground squirrels.

This condition of extended freedom from great epidemics in this country has been due principally to the constant vigilance of officials of Public Health Service. It is interesting to note that the airplane has been added as an important possible source of infection. The time of passage from many countries

to our shores now falls within the incubation period of many dangerous communicable diseases. The broad field of Public Health Service in disease research activities in the cause and prevention of disease includes a wide field of activities. Its research work covers a great variety of conditions, including among others cancer, encephalitis, heart disease, leprosy, malaria, psittacosis, Rocky Mountain spotted fever, tularemia, tick fever and many hygienic conditions.

RESULTS OF MEDICAL LEGISLATION

In all of our states it is a live question this month as to what bills will be enacted by our legislators, affecting medical practice and public health. From the welter of discussion and agitation by reformers and advocates of special interests, one might anticipate the enactment of radical measures which will have a decisive effect on medicine. At this writing one can only speculate as to what will be introduced and what measures will be passed by our respective legislatures. Under the heading, "State Departments," will be found a review of measures likely to be considered by the Oregon legislature. It will be noted that the passage of a bill establishing state medicine is not anticipated, although one can never be certain what sort of bills may be introduced. Subjects of special interest to the medical profession that may be considered are discussed in this correspondence. The attention of the Idaho profession is especially concentrated on the establishment of a modern state department of health. It would seem from the agitation on this subject and the general public interest which has been elicited that constructive legislation may be anticipated.

In Washington legislative circles rumors prevail concerning a great variety of bills which are contemplated bearing on medical practice. A House bill has been introduced, granting chiropodists the right to treat ills of the human foot medically and surgically. The passage of this bill would amount to the establishment of a new cult of individuals without knowledge of health and disease, with authority to treat conditions which might result from serious constitutional disturbances. A "Hotel Lien Bill" has been introduced which protects hospitals and physicians from loss in automobile accidents by giving them a lien on the insurance carried by the injured individual. A sterilization bill and one liberalizing the dissemination of birth control information have been introduced in the Senate. A sanipractic bill is in contemplation which would

grant to this class of practitioners, as well as drugless healers, equal privileges with physicians who practice in public institutions. It is known that two bills are ready for introduction establishing some form of state medicine. Definite action may be taken in our legislatures on some or all of these bills in the near future, on which comment may be in order in next month's issue.

SPECIAL MEDICAL BROADCAST

The thirty-first annual congress of the Council on Medical Education and Hospitalization of the American Medical Association will be held at the Palmer House, Chicago, February 18-19. The program of this meeting was published in the *Journal of the American Medical Association*, January 26. In connection with this meeting a special medical broadcast program will be presented Monday, February 18, by the National Broadcast Company over network of their stations at 6 p.m., Eastern Standard time. In addition to a musical program, there will be addresses by Dr. Walter R. Bierring on "Advances of Medical Education," Dr. Ray Lyman Wilbur on "The Prolongation of Life," Dr. Kendall Emerson on "The Battle Against Tuberculosis." It has been requested that physicians of our northwestern states call the attention of their patients to the program on this day with the suggestion that they listen in to all these speakers on these designated subjects. Later, if so desired, copies in booklet form of these addresses may be obtained on request.

TECHNICAL JOURNAL

"Of making books there is no end" is a well known and true assertion. It seems that it might be almost equally applicable to various forms of magazines and journals. The *Bulletin of the American Society of Clinical Laboratory Technicians*, however, seems to have a justifiable field for existence. The laboratory technician is a necessity in the field of medical practice. An agency like this bulletin, intended for the technician's edification, seems a timely introduction. The editorial board includes physicians and technicians. The initial issue presents several papers describing technical methods which should interest anyone concerned with laboratory procedures. This publication is entitled to the endorsement of all interested in the development of exact laboratory details.

MEDICAL NOTES

OREGON

MEDICAL CENTENARIAN. When an individual attains the age of 100 years this is an event worthy of comment, since very few of mankind achieve this distinction. Junius B. Wright of Portland reached this age January 16. Dr. Wright served as a captain in an Iowa regiment during the Civil War and received his medical degree in 1858. For forty years he practiced in Idaho in the Boise area. He is quoted as saying, "I don't smoke and I don't drink, and I hope to give you some kind of story a year from now."

PRESIDENT OF BOARD OF HEALTH. Robert L. Benson of Portland was elected president of the State Board of Health at its annual meeting at Salem, January 8. He succeeds Albert Mount of Oregon City. Joseph P. Brennan of Pendleton was re-elected vice-president and Frederick D. Stricker of Portland, executive secretary. Dr. Stricker was instructed to use his efforts for the appropriation for the laboratory at Hamilton, Mont., so that Rocky Mountain spotted fever vaccine may be available in suitable amounts.

BUSY OBSTETRICIAN. It is reported that E. V. Hoover, who has been a general practitioner for thirty-four years in his native city of Roseburg, has delivered two thousand babies during that period. His designation as pioneer physician seems appropriate and he must be known by all the residents of his city.

CLINICAL DIRECTOR. James L. McCartney of Portland has left that city to accept the position of Clinical Director of the Department of Neuropsychiatry at Battle Creek Sanitarium, Battle Creek, Mich.

HOSPITAL LEASED. Seaside General Hospital has been established at Seaside by Mrs. Joe Bany, formerly of Good Samaritan Hospital of Portland. The leased property has been completely renovated and will be operated as a general hospital.

ADDITION TO HOSPITAL. Good Samaritan Hospital of Portland is making alterations and enlargements of offices and rooms at a cost of about \$9000. This will promote the efficiency and convenience of administration.

PRESIDENT OF HOSPITAL GROUP. P. J. Bartle of Eugene has been elected president of Eugene Hospital and Clinic to succeed Wm. Kuykendall, deceased, founder of the hospital.

HOSPITAL BURNED. Mill City hospital was destroyed by fire January 12, supposedly caused by a defective furnace. It was owned by W. W. Allen.

KLAMATH AND LAKE COUNTIES MEDICAL SOCIETY, at a meeting held in Klamath Falls in January, elected for the ensuing year as president, F. C. Adams, and secretary, G. H. Adler, both of Klamath Falls.

T. K. JOHNSON, who has practiced for the past four years at Hermiston, has located at North Powder where he will continue the practice of medicine.

WASHINGTON

SEATTLE SURGICAL SOCIETY held a meeting in Seattle, January 25-26, with a program of papers and clinics by members of the society which were of unusual merit, covering a large range of subjects, as was indicated in the program published in last month's issue of this journal. The recognition of the quality of the program was demonstrated by the attendance, including ninety-three physicians aside from Seattle practitioners. Thirteen of these were from Oregon, two each from British Columbia and Idaho and one from California. Twenty-nine cities of Washington were represented. These figures indicate the widespread interest in the program of the meeting, papers and clinics, with the exception of the visitor from California, being presented only by members of this society. This was a demonstration of the fact that in each state organization material is available for scientific programs that are sufficiently attractive and instructive to make worthwhile the attendance of the profession from the Northwest.

TACOMA SURGICAL CLUB will hold its annual meeting March 30. It will be devoted to the study of obstetric and gynecologic pathology. The guest speaker will be O. H. Schwarz, professor of obstetrics and gynecology, Washington University, St. Louis. Reservations may be made with R. C. Schaeffer, Medical Arts Building, Tacoma.

OFFICIALS RETAINED. Following the election of new members on the Board of Commissioners in Pierce County there has been considerable discussion concerning the superintendents of county institutions. The Board has decided to retain Burton A. Brown as superintendent of the County Hospital who, under several administrations, has maintained the well known high standing of the institution. R. E. McPhail has also been retained as superintendent of the tuberculosis sanitarium at Lakeview. He has held this position for a long period and conducted the institution in an admirable manner.

HEALTH OFFICER WANTED. Residents of Forks have appealed to the county commissioners for the appointment of a health officer for their city. He is especially desired to inspect school children and supervise infectious cases and other necessary health work. As a temporary appointment the board selected Horace Doust, a practitioner of Forks.

ADDITION TO BE COMPLETED. The new wing of Aldercrest Sanatorium in Snohomish County is to be completed. For some time work has been done intermittently on this addition. When finished, it will provide for twenty beds where the most serious cases will be treated.

AERONAUTICS EXAMINER. Edwin D. Warren of Tacoma has been appointed aeronautics examiner for the Department of Commerce for this section of the state, to serve in place of R. D. Wright who has located at Grand Coulee.

AUTOPSY SURGEON. Victor Cefalu of Seattle has been appointed county autopsy surgeon by Otto H. Mittelstadt, undertaker, who was elected coroner at the November election.

SEATTLE SURGICAL SOCIETY at its last meeting elected the following officers for the ensuing year: President, C. E. Hagyard; vice-president, H. J. Wyckoff; secretary-treasurer, J. F. LeCocq.

REELECTED. Ralph Hendricks of Spokane has been re-elected health officer and chairman of the board of health at the recent annual meeting of the board.

CORONER APPOINTED. T. H. Long of Tacoma, newly elected coroner on the Democratic ticket for the ensuing year, was appointed in December to fill the unexpired term of E. H. Perry, deceased.

F. W. ANDERSON of South Bend was commissioned colonel of Medical Reserve Corps, December 1.

WEDDINGS. John W. Goodheart, pioneer physician and resident of Bellingham, and Mrs. Nell S. Burghoffer of that city were married December 26. Raymond E. Tennant of Seattle and Miss Alice Pennington of Yakima were married in the latter city January 5.

IDAHO

NEWLY APPOINTED OFFICERS. At a meeting of county commissioners at Burley, January 15, Joseph Fremstad of Burley was appointed county physician and health officer for Cassia County for the next two years, succeeding G. G. Espe. C. I. Sater of Malta was appointed sanitary officer. Following the organization of the board of health, Dr. Fremstad was appointed secretary.

NORTH DISTRICT MEDICAL SOCIETY held a meeting at Lewiston December 20 at Lewis Clarke Hotel. The following officers were elected for the ensuing year: President, C. O. Armstrong of Moscow; Vice-President, W. B. Habel of Lewiston; Secretary, J. E. Baldeck of Genesee.

APPOINTED HEALTH OFFICER. At a meeting of the new board of county commissioners at American Falls, January 14, V. G. Logan of American Falls was appointed health officer for Power County.

APPOINTED CORONER. At a meeting of County Commissioners in Twin Falls last month H. L. Stowe of Kimberly was appointed coroner for Twin Falls County to succeed F. A. Dwight, deceased.

NEW COUNTY PHYSICIAN. At a meeting of county commissioners at Pocatello last month H. H. Hughart of that city was appointed county physician of Bannock County to succeed H. C. Irwin.

E. T. CARVER, who has recently been located at Nampa, has moved to Emmett where he will continue to practice.

OBITUARIES

DR. MONTGOMERY RUSSELL of Seattle, Wash., died January 17, from pulmonary abscess following pneumonia, aged 76 years. He was born in Bedford, Pa., in 1859. After graduating from Washington and Jefferson College, he received his medical degree from University of Pittsburgh School of Medicine in 1889. In 1890 he located in Seattle. For many years he was surgeon for Pacific Coast Company and the Oregon-Washington Railway and Navigation Co. He was closely connected with medical organizations, serving as president of the county and state societies. He was a man of pleasing personality, endearing himself to patients and many friends. He was a representative family physician of the former generation, whose numbers are rapidly disappearing.

DR. H. W. BORTNER of Everett, Wash., died January 8 following an extended illness, aged 45 years. He was born

at Union City, Ind., in 1889. He obtained his medical degree from the Ohio State University School of Medicine at Columbus in 1914. After serving for two years as assistant to the professor of medicine he located for practice at Senecaville, Ohio. He located in Sultan, Wash., in 1917. Following two years' army medical corps service in France, being discharged with the rank of captain, he returned to Sultan in 1920. He located in Everett in 1927. At the election last November he was elected coroner of Snohomish county.

DR. FRANK E. SMITH of Portland, Ore., died December 30, as result of an automobile accident, aged 61 years. He was found at the bottom of a twelve-foot embankment, against which his car had apparently skidded. He was born in Des Moines, Iowa, in 1873. Most of his life was spent in Kansas until he moved to Oregon in 1894. He obtained his medical degree from University of Oregon Medical School in 1898. He located in Alaska where he practiced until 1899 when he located at Lakeview. He moved to Salem in 1902, remaining there until 1913 when he settled for practice in Portland.

DR. WILLIAM K. TURNER of Seattle, Wash., died January 12, after a prolonged illness, aged 65 years. He was born in Fleming County, Ky., in 1870. After graduating from Transylvania College, he obtained his medical degree from Hospital College of Medicine, Louisville, in 1895. He was a brilliant student with an unusual record. Following graduation he was a member of the college faculty. He came to Seattle in 1903, where he practiced until a short time before his death. In the World War he enlisted with the Canadian Expeditionary Force in 1916, remaining in service until 1919, being wounded in action while serving in Belgium. His keen intellect and friendly nature endeared him to many friends and patients. His loss is felt by many medical associates.

DR. EDWARD R. PERRY of Tacoma, Wash., died December 19, after several weeks illness involving the heart, aged 62 years. He was born at Ripley, Ohio, in 1872 and obtained his medical degree from University of Cincinnati in 1896. He located for practice at Louisville, Ky., and later moved to Raymond, Wash. In 1919 he located at South Tacoma. During the World War he held the rank of Lieutenant Colonel. He was a member of the Astronomical Society of the United States. At the time of his death he was serving his second term as county coroner.

DR. FRANK A. DWIGHT of Filer, Ida., died from disease of the heart, December 28, aged 65 years. He was born at Decatur, Ill., in 1869. After graduating from Chicago Dental College he practiced dentistry at Adell, Ia. In 1897 he graduated from Jenner Medical College, Chicago. For several years he was on the faculty of the College of Physicians and Surgeons in Chicago. He located for practice in Twin Falls in 1913, later moving to Filer. In 1931 he was appointed county coroner to complete the term of the deceased incumbent. At the recent November election he was reelected for a two-year term.

DR. BARNEY FERRELL of Bend, Ore., died January 15, following a prolonged illness, aged 59 years. He was born in Illinois in 1875. He began teaching school at fifteen years of age. After serving in the Spanish American War he graduated in medicine from Northwestern University Medi-

cal School in 1904. After practicing for a time in Illinois, he located in Bend in 1908. He continued practice with the exception of a year and a half when he was railroad physician at Nehalem, Ore., until incapacitated several years ago by ill health.

DR. CHARLES A. RIEMCKE of Yakima, Wash., died January 21, after a long period of illness, aged 52 years. He was born in Muscatine, Ia., in 1882. He obtained his medical degree from the University of Iowa College of Medicine in 1909. He practiced for several years in his native city, locating in Yakima in 1915. He was actively engaged until several months ago, when ill health required him to retire.

DR. EGBERT A. GOLDSMITH of Seattle, Wash., died January 18, when he collapsed on the street from disease of the heart, aged 58 years. He was born in Toronto, Canada, in 1877. He graduated from Chicago Homeopathic Medical College in 1903. He came to Seattle in 1904, locating in the section known as Columbia, where he practiced until the time of his death.

DR. GEORGE A. WOODCOCK of Cottonwood, Ida., died December 20 from disease of the ears of several months' duration, aged 64 years. He was born in Eureka, Calif., in 1870. He obtained his medical degree from University of Illinois College of Medicine in 1894. He located in Cottonwood in 1924, continuing in practice there until his recent illness.

DR. LESCO A. ROBINSON of Spokane, Wash., died January 19, from influenza and heart disease, aged 63 years. He was born in 1871 and obtained his medical degree from Rush Medical College in 1896. He practiced in Spokane for thirty years, acquiring an extensive practice with a large circle of friends.

REPORTS OF SOCIETY MEETINGS

OREGON

CLATSOP COUNTY MEDICAL SOCIETY

Pres., S. A. Kleger; Secty., O. C. Hagmeier

Clatsop County Medical Society held a meeting at Astoria, December 19. Officers for the ensuing year were elected as follows: President, S. E. Kleger; Vice-President, R. J. Pilkington; Secretary-Treasurer, O. C. Hagmeier, all from Astoria. These officers will have charge of the annual meeting of the state society which will be held in their county next September. The meeting of the medical society was preceded by the monthly meeting of the attending staff of Columbia Hospital.

JACKSON COUNTY MEDICAL SOCIETY

Pres., C. A. Haines; Secty., D. H. Findley

Jackson County Medical Society held its annual meeting with a banquet at Medford, January 16. The attendance of eighty members and visitors was the largest in the history of the organization, including representatives from cities in that part of the state. Addresses were made by officers of the society and the ladies auxiliary. Papers also were presented by D. H. Findley and W. H. Heckman.

WASHINGTON

CHELAN COUNTY MEDICAL SOCIETY

Pres., E. D. Sawyer; Secty., R. K. Pomeroy

Chelan County Medical Society held its monthly meeting, following a dinner at Columbia Hotel, Wenatchee, January 9, with President Sawyer in the chair. The following officers were elected for the ensuing year: President, E. D. Sawyer; Vice-President, J. S. Leisure; Secretary-Treasurer, R. K. Pomeroy, all of Wenatchee.

The following program of papers was presented: "Cancer of Breast," by Donald V. Trueblood of Seattle and "Relief of Pelvic Pain," by Paul G. Flothow of Seattle.

CLARK COUNTY MEDICAL SOCIETY

Pres., L. E. Hockett; Secty., J. D. Blair

Clark County Medical Society held a meeting at Camas, January 8, this being the first time the county society has met at this city. L. Howard Smith of Portland discussed "The Care of School Children." Nathan L. Thompson, of Everett, president of the state medical association, addressed the meeting. R. D. Wiswall of Vancouver, member of the legislature, gave an address on "Bills coming before the legislature in Olympia this session."

Officers for the ensuing year are W. B. M. McMakin of Camas, president; H. L. Eldridge of Washougal, secretary and treasurer; A. E. Bird of Camas, advisor of the auxiliary.

GRAYS HARBOR MEDICAL SOCIETY

Pres., H. C. Randolph; Secty., K. D. Graham

Grays Harbor Medical Society held a meeting at Aberdeen, January 10. Guest of the evening was Nathan L. Thompson, of Everett, president of the state medical association, who discussed problems confronting the medical profession of the state. The Auxiliary to the County Medical Society met at the same time, having as their guest Mrs. Nathan L. Thompson, president of the auxiliary to the state medical association, who gave an instructive and educational talk on the work of the auxiliary.

KING COUNTY MEDICAL SOCIETY

Pres., H. G. Wright; Secty., F. H. Douglass

King County Medical Society held its annual meeting at the Auditorium, Medical Dental Building, Seattle, January 7, president Wright presiding. Minutes of last regular meeting were read and approved.

The following were elected to membership: Hale Havens, D. R. Hillery, and E. O. Schreiner. Applications of E. J. Benz and A. L. Windom were read.

The following officers were elected for the ensuing year: President-Elect, R. D. Forbes; Secretary-Treasurer, F. H. Douglass; Trustees, H. G. Wright, A. L. Balle and Thomas Morcom; Delegates to the annual meeting of state medical association; A. J. Bowles, E. W. Young, C. E. Watts, G. R. Marshall, A. L. Balle, B. T. King, F. J. Clancy, Thomas Morcom, Frederick Slyfield; alternates, H. E. Nichols and J. M. Bowers.

Retiring president's report was read by H. G. Wright, giving an account of the society proceedings during the past year and referring to its varied forms of activities, in a complete and instructive presentation.

Following this report President Raymond L. Zech was inducted into office. He delivered an address of apprecia-

tion for the honor conferred, with suggestions as to expectations for the coming year.

Report of the Secretary-Treasurer was read by F. H. Douglass, covering receipts and disbursements, assets, bonds and financial transactions of the society. Reports of the following committees were read: Program Committee by R. D. Forbes, Grievance Committee by P. V. vonPhul, Bulletin Committee by A. H. Peacock, Membership Committee by T. T. Manzer, Legislative Committee by E. W. Young, City Health Committee by F. M. Carroll, Library Committee by W. S. Griswold, Telephone Committee by H. C. Christopher, Welfare Committee by S. F. Wiltzie, Publicity Committee by C. C. Goss, Medicolegal Committee by Walter Kelton, Economics Committee by I. B. Greene.

LEWIS COUNTY MEDICAL SOCIETY

Pres., A. E. MacMillan; Secty., Rush Banks

Lewis County Medical Society held a meeting at Centralia, January 14. A paper was read by H. V. Bories of Seattle. Officers reelected for the ensuing year were Joel E. Toothaker of Centralia, president; W. D. Turner of Chehalis, vice-president; Rush Banks of Centralia, secretary-treasurer, a position which he has held for the past twenty years.

SKAGIT COUNTY MEDICAL SOCIETY

Pres., R. K. Behrns; Secty., F. W. Baugh

Skagit County Medical Society held its regular monthly meeting January 28, following a dinner at 7 p.m. at President Hotel, Mount Vernon, dinner guests being Dr. and Mrs. Nathan Thompson, and Dr. and Mrs. Jones of Everett. Meeting was called to order by President R. K. Behrns. Minutes of last meeting were read and approved.

C. E. Watts of Seattle gave an instructive talk on "Cardiac Asthma," bringing out differential diagnosis and his reliance on large doses of morphine for treatment.

Brien T. King of Seattle gave a summarized review of experiments with "The Anterior Pituitary Hormones." He reported a case of acromegalia, showing the patient in photographs before and after treatment with thyroid extract. Discussion followed the papers.

Nathan Thompson, president of the State Medical Association, reviewed the activities of the state organization. He told of legislative activities and the problems they had to face with the present session. He invited the members to attend the next meeting of Snohomish County Medical Society at Everett, February 7, when a survey would be given of the medical-social conditions in Pierce County by Dr. Whitacre.

On motion of Dr. Cleveland it was voted that the society contribute one dollar for each member to the state committee fund and this be added to each member's dues as an assessment.

The problem of county care of indigent medical and surgical cases was discussed. The president appointed a committee of Drs. Cleveland, Boynton and Brooks to collect doctors' bills they have against the county and to make arrangements to collect them through the courts.

Application for membership of M. C. Sexton of Sedro Woolley was read and referred to Board of Trustees.

Newly elected officers for 1935 are: President, R. K. Behrns, La Conner; vice-president, J. H. Coleman, Mount Vernon; secretary-treasurer, F. W. Baugh, Mount Vernon;

board of trustees: J. H. Coleman, F. W. Baugh, C. E. Kjos, all of Mount Vernon, R. K. Behrns of La Conner, Llewellyn Cook of Anacortes; delegate to State Association meeting, C. E. Kjos, alternate, S. W. Holton of Sedro Woolley.

SNOHOMISH COUNTY MEDICAL SOCIETY

Pres., A. H. Gunderson; Secty., E. J. Van Buskirk

Snohomish County Medical Society held a meeting at Everett, January 3. John F. Beatty read a paper on diuretics followed by general discussion. On motion of Nathan L. Thompson, it was voted to have papers read before the society be typewritten and filed with the secretary. President Gunderson appointed Drs. Duryea, Caldbick and Thompson as members of the Legislative Committee.

SPOKANE COUNTY MEDICAL SOCIETY

Pres., C. R. Mowery; Secty., W. E. Grieve

The annual meeting of Spokane County Medical Society was held January 10, at 8:15 p.m., in Paulsen Medical and Dental Building Auditorium, Spokane, with President Charles R. Mowery in the chair. Minutes of the previous meeting were read and approved. Judge Charles A. Leavy spoke on the Townsend Plan for thirty-five minutes.

The Board of Censors reported the application of M. T. Harris would be voted on at the next meeting.

It was voted that the Treasurer's report, which had been audited, be accepted and placed on file.

Cash on hand January, 1934.....	\$ 618.35
Dues collected during 1934.....	3,786.85
Ticket sale spring stag dinner.....	159.00
Total cash receipts.....	\$4,564.20
Paid to Spok. Med. and Dental Library, \$2,389.50	
Paid to Wash. State Med. Assn.....	845.00
Expenses spring stag dinner.....	234.40
County Society general expense.....	177.54
Total disbursement.....	\$3,646.44
Cash on hand, January, 1935.....	\$ 917.76

A plan of medical care under the W.E.R.A. was read, which had been proposed by its officials of this city and studied by a committee of the Board of Trustees. After discussion, Dr. Fischer moved that the proposition be turned down. During further discussion it was stated there was going to be a reorganization of the W.E.R.A. and this plan was only temporary. On motion of Dr. Doland it was voted that the matter be laid on the table.

The following officers were elected for the ensuing year: President-elect, F. G. Sprowl; Secretary, F. J. Burns; Treasurer, W. W. Henderson; Board of Trustees, O. M. Rott and David Hartin for three years, and A. O. Adams for two years to fill unexpired term of Dr. Sprowl.

Thanking the society and committees for their cooperation during the past year, Dr. Mowery turned over the chair to President D. H. Lewis who announced the following committees:

WALLA WALLA VALLEY MEDICAL SOCIETY

Pres., H. C. Cowan; Secty., G. R. Gowen

Walla Walla Valley Medical Society held a meeting at Walla Walla January 9, following a dinner at Grand Hotel with President H. C. Cowan in the chair, at 7:20 p.m. and visiting doctors were present. The following program was presented by Portland physicians. J. R. Montague considered "Hypothyroidism" which was discussed by E. L. Whitney, E. J. Rhoades, J. E. Potts and H. A. Mount. Virgil Dudman presented "Modern Office Gynecology"

which was discussed by Elmer Hill and C. E. Montgomery. The paper by H. B. Belknap was discussed by C. E. Montgomery, Elmer Hill, and E. J. Rhoades.

YAKIMA COUNTY MEDICAL SOCIETY

Pres., H. S. Atwood; Secty., T. J. Schott

Yakima County Medical Society held a meeting at Yakima, January 14, at Commercial Hotel. The program consisted of a paper by Blair Holcomb of Portland on "Diabetes" and J. H. Fitzgibbon of Portland on "Colitis." Regular items of business were attended to.

IDAHO

IDAHO FALLS MEDICAL SOCIETY

Pres., H. L. Wilson; Secty., E. A. Cantonwine

Idaho Falls Medical Society held a meeting at Idaho Falls, January 11, at Hotel Bonneville. The matter of public health in the state of Idaho was discussed at length. Resolutions were adopted which were presented by Charles R. Scott, president of the state medical association, petitioning Governor Ross to create a division of public health within the department of public welfare. This matter is being agitated among various county societies in an effort to consolidate the demand for such action before the legislature.

KOOTENAI COUNTY MEDICAL SOCIETY

Pres., J. T. Wood; Secty., R. T. Hensen

Kootenai County Medical Society held a meeting at Coeur d'Alene in January when the following officers were elected for the following year: President, J. T. Wood of Coeur d'Alene; Vice-President, J. W. Schori of Spirit Lake; Secretary-Treasurer, R. T. Hensen of Coeur d'Alene; Delegate to annual meeting of state medical association, Alexander Barclay; alternate, E. L. Spohn; Board of Censors, J. Hustad, J. W. Schori and E. L. Spohn.

CONTUSIONS OF THE HEART

CLAUDE S. BECK, Cleveland (*Journal A. M. A.*, Jan. 12, 1935), believes that in contusions of the heart the force necessary to bruise the heart need not be severe. The ribs and sternum need not be broken and, indeed, the thoracic wall need show little or no evidence of trauma. When the heart receives a contusion, one of three possible courses is taken: 1. The heart ruptures. 2. The heart fails without rupture. 3. Recovery takes place. Out of 175 patients with nonpenetrating wounds of the heart 152 died from rupture, eleven died from myocardial failure and twelve recovered. Obviously these proportions do not represent the correct relative incidence of these types of cases. There can be no doubt that 93 per cent of such cases are not fatal. The error is in the number of cases in which recovery occurs in which only a clinical diagnosis can be made. It would seem that clinicians hesitate to make the diagnosis of a cardiac contusion. Contusions or nonpenetrating wounds of the heart rarely destroy life. The heart can tolerate an enormous amount of trauma and recover. The author exposed the heart in a series of twenty-five experiments and applied contusive injuries to the myocardium, from which he concludes that the heart can tolerate an excessive amount of trauma, that recovery is the rule rather than the exception, and that if death occurs it is caused by ventricular fibrillation, rupture or myocardial failure coming on after a tachycardia. Rupture is a rare complication of a cardiac contusion; nevertheless, the literature consists almost entirely of these rare cases of rupture. The vast majority of the largest group of cases, cases in which recovery takes place, go by unrecognized. On the basis of this analysis of cases the author gives in outline form the mechanism by which nonpenetrating wounds of the heart have been produced and the mechanism by which rupture of the heart takes place in nonpenetrating forms of trauma.

STATE DEPARTMENTS

OREGON

OREGON LEGISLATURE IN SESSION

A MESSAGE FROM THE COMMITTEE ON PUBLIC POLICY

The 1935 Oregon Legislature convened at Salem, January 14, for its regular session of forty days. It seems probable that a special session may be called at the end of this time to consider the enactment of legislation to provide state cooperation in connection with certain national legislation to be considered by Congress. It is certain that legislation affecting the public health and the medical profession will be before both the regular and special sessions.

The value of having a group of professional men in the Legislature who understand the problems in our field has been emphasized on many previous occasions. We are again fortunate in that there are three physician-members of the legislature: Senator James A. Best of Pendleton, and Representatives J. F. Hosch of Bend and Clyde T. Hockett of Enterprise. All three have indicated to the Committee on Public Policy and the Council that they desire to cooperate fully in the direction of sound health and professional legislation.

As in recent years, the legislative activities of the Oregon State Medical Society will be conducted in cooperation with the Oregon State Federation of Professional Societies, which is an affiliation of the state societies of architects, physiotherapists, dentists, graduate nurses, physicians, pharmacists, radiographers and veterinarians, acting through their respective legislative committees. The Federation will maintain a headquarters in the Capital Building, in which telephone, stenographic, mimeographing and other necessary services will be available to the member groups. Through this headquarters the full-time executive secretaries of affiliated societies, including the Oregon State Medical Society, the Oregon State Pharmaceutical Association, and the Oregon State Graduate Nurses Association, will assist in keeping the member groups apprised concerning the status of all legislation in the fields of public health, public safety and public welfare. For the information of members who may find it necessary to reach our legislative headquarters promptly, the telephone number is Salem 8118.

While the Federation has in contemplation some legislation which it will sponsor in the interests of improved professional standards, the program this year is somewhat less extensive than in previous years, when such major legislation as the basic science law was initiated. Medical legislation to be sponsored includes a measure to require all persons using the title "doctor" in connection with the practice of the healing art to indicate on their professional stationery and in all public announcements the particular school of healing which the individual practices. This measure is designed to protect the public from misrepresentation, particularly by cult healers who in many cases do not now indicate that they are cult practitioners, thus leaving the impression that they are doctors of medicine. Amendments to the medical practice act will also be offered for the purpose of permitting the State Board of Medical Examiners to suspend a license, in cases where revocation is felt to be a too extreme penalty, and to add to the causes of revocation "the obtaining of a fee by fraud or misrepresentation."

Other legislation under the general sponsorship of the Federation will include a measure to amend the code regulating the practice of architecture in such a way as to require that all public and semipublic buildings be erected under the supervision of a registered architect or registered engineer. This measure is in the interest of public safety and would insure that all buildings in which the public gathers in considerable numbers are safe.

Important amendments to the pharmacy code will also be presented to make impossible a repetition of the abuses resulting from the unrestricted sale of denatured alcohol which recently resulted in the death of twenty-two persons in Portland. The amendments will also include additional provisions for the better regulation of the sale of other poisons.

Legislative measures, which the Federation may find it necessary to oppose in the interests of proper professional standards, may include bills introduced at the request of the chiropractors and naturopaths to expand their field of practice to the point where a license to practice chiropractic or naturopathy will in effect be a license to practice medicine and surgery. An attempt to repeal the Basic Science Law, which was recently upheld by the voters of the state in the approximate ratio of 3 to 1, is likewise a probability. Possible also is an attempt on the part of the advertising dentists to obtain the repeal of the amendments to the dental practice act, enacted in 1933, which prohibit the use of certain types and methods of advertising by dentists.

A defensive fight may also be necessary against the attempt usually made at each session of the Legislature to consolidate the various professional examining boards or to replace the funds of all such boards in the general fund of the State and require the individual boards to appear before the Legislature for appropriations at each session. Both of these proposals would seriously interfere with the proper enforcement of the several professional practice laws which for many years have been successfully and economically administered by a separate board controlled only by appointment of the personnel by the Governor. The use of license and regulations fees for general state purposes is, of course, a violation of the principle underlying the enactment of the professional practice acts, namely, that the fees collected are to be used exclusively for the enforcement and administration of the professional practice acts and not for any general state purpose. The enactment of such legislation would be equivalent to levying a special occupational tax upon members of the various professions who, as tax-payers, are already contributing their due share to the maintenance of the general functions of state government.

Of special interest to the medical profession will be legislation proposed to carry out the report of the Interim Commission on Public Health and Welfare which, since the last session of the Legislature, has been studying the entire field indicated by its title. This report contains several recommendations for changes in the present health and welfare set-up, including changes in the control of state institutions which render custodial and medical care as well as in the administration of relief, including medical relief.

As several prominent members of the medical profession were members of the Interim Commission, it is felt that in most respects the interests of the public health and scientific medicine have been properly safeguarded. Nevertheless, it will be necessary to watch carefully all legislation proposed to carry out the recommendations of the Commission, as these may be materially altered during the course of their consideration by the Legislature.

While there have been reports that copies of the model state health insurance act prepared by the American Association of Social Security of New York City have been sent out for introduction in many state legislatures, no information is available to indicate that any group in Oregon will sponsor compulsory health insurance at the present session. Nevertheless, the introduction of such legislation is entirely possible and it is necessary that the situation be carefully watched.

The Committee on Public Policy urges that the entire membership take an active interest in measures affecting the medical profession and other professional groups with which the society is affiliated. The committee will doubtless find it necessary to communicate with the legislative committees of the component medical societies and the joint county legislative committees of the Federation. The committee requests prompt action on the part of members throughout the state who may be called upon during the session, either as committee members or as individuals, to communicate with the members of the legislature from their districts concerning impending legislation.

Several matters of interest to the profession throughout Oregon were acted upon at a recent meeting of the Multnomah County Medical Society. The council appointed a Board of Review of Medicolegal Testimony, whose duty it shall be to review testimony given in court and to bring to the attention of the profession such as is not in accord with scientific fact or accepted opinion.

In conjunction with the above the council by resolution declared that the Multnomah County Medical Society will cooperate with the Bench and Bar in the selection of competent medicolegal witnesses.

A third action of the council which is of interest throughout the state is providing of speakers to lay groups on the subject of health insurance. So much misinformation is being given out that it was thought desirable that the facts as a doctor sees them be presented.

WOMAN'S AUXILIARY

The midyear board meeting was held in Portland January 9. A special guest was Mrs. Nathan L. Thompson, President of the Woman's Auxiliary of Washington State Medical Association, who extended greetings from her Society. Banner R. Brooke spoke on Medical Economics and Frank R. Menne on Crime Laboratories. Mrs. Eva Emery Dye, author, spoke on the life of Dr. John McLoughlin. Our auxiliary is refurbishing the library of the McLoughlin house at Oregon City. Drs. C. E. Sears, chairman of the advisory council, and Olaf Larsell were present.

County presidents, including Mrs. Gordon MacCracken, Jackson; Mrs. Charles T. Chamberlain, Multnomah; Mrs. C. A. Downs, Marion-Polk-Yamhill; Mrs. Leon W. Hyde, Clatsop-Tillamook; Mrs. E. W. Howard, Benton; Mrs. E. D. Lamb, Klamath Lake; Mrs. W. G. Homan, Member-at-Large, all gave reports. Mrs. C. H. Manlove of Multnomah County spoke on Public Relations and the use and purpose of the study envelope.

HISTORY OF MEDICINE IN THE PACIFIC NORTHWEST

This will be given under the supervision of Mrs. Wilson Johnston, State Program Chairman. This course, as outlined, is based largely upon the excellent material contained in Dr. Larsell's articles which appeared in the August, September, November and December numbers of *NORTHWEST MEDICINE* for 1932. For supplementary information the student will enjoy delving into biographies of such men as Dr. McLoughlin, Marcus Whitman and Jason Lee. Many are available at the book stores and the public library. To Miss Lillian Misbet of the Portland Public Library and Miss Bertha Hallam of the Medical School Library we are indebted for a list of references bearing upon the several topics. These will be gladly furnished by the Program Chairman.

WASHINGTON

PRESIDENT'S LETTER

Everett, Wash., January 25, 1935.

To Members of Washington State
Medical Association:

Ever since I became President of our State Association I have hoped I might call on Dr. Webster, President of the Oregon State Society, for a friendly visit. At last I found I could take the week of January 6-12 and be in Portland, Wednesday, January 9. Imagine what luck to find a luncheon meeting of the Executive Board of the State Medical Society and a dinner meeting of the State Council corresponding to our Board of Trustees. And so my visit to Dr. Webster gave me the opportunity to meet many of the earnest workers who guide the destinies of the Oregon State Society.

It was, of course, interesting to me that they could have regular monthly meetings. What an opportunity to initiate, discuss and put in operation movements for the good of the profession. Oregon doctors pay \$20 per year (temporarily reduced to \$15) to belong to their State Society.

As I get it, this includes membership in the Defense Fund of the Society and by paying \$26 additional insurance in a private insurance company, making \$41 per year that all must pay. It also takes care of public education and legislative activities.

In our state those of us who carry the Defense Fund get our malpractice insurance for \$30, making our insurance \$40 plus our \$5 state dues which amounts to \$45 or practically the same. All members of the Oregon Society share in the Defense Fund, and the Society takes care of the work done by the Public Health League in our state, they having absorbed their League. In Washington a few pay \$5 to \$25 to the support of the League for the good of all.

Making the Defense Fund, etc., obligatory on all and taking care of it in the state dues is something I think we might well consider. I am inclined to believe that we had better carry on our Public Health as a separate corporation, interesting dentists, nurses, pharmacists, hospitals and some lay organizations, paying so much per member out of our treasury and each member organization doing the same.

In Oregon they have a federation of professional organizations, to which the Medical Society belongs and many matters of interest common to all can be pushed by the united organizations and the influence of the Federation can be given to a member organization if deemed worthy and of public value. This might be a better way for us.

All of this means increased dues, of course, and it might mean loss of membership in our State Association. But should it, if the Association is delivering the goods? True, only about 50 per cent of Oregon physicians belong to the State Society and I suppose the amount of dues is the reason. Personally I would not like that, for we have 300 to 400 doctors in our state now who are not members. But can it be that somehow we have not sufficiently shown the nonmembers the value of a good working organization?

On my way to and returning from Portland, I visited Mason-Thurston, Lewis, Cowlitz, Clark, Pacific and Grays Harbor counties. In Mason-Thurston and Lewis counties they called special meetings. In Cowlitz and Grays Harbor they advanced the dates of their meetings to honor the State Association. In Clark county they were holding their regular meeting.

It was certainly a pleasure to meet these men in their own societies and discuss our common problems, and they are common problems with few local variations. All feel that the State organization should solve most of these problems and establish and enforce rules and regulations for the guidance of each county, much as many state organizations feel the A. M. A. should do for the several states. Certainly, if we could all cooperate for the benefit of the profession and forget our selfish interests, we could restore our prestige, preserve all we have gained and beat back the forces of State medicine and irregular practices, thus solving the problems of good health for all at prices that all could pay.

I found everywhere the belief that our Service Bureaus are a good foundation on which to build a practice of medicine that will give all the benefits of State Medicine, avoiding its pitfalls, preserve the personal relation between patient and doctor and keep it all within the control of scientific medicine. I found everywhere the feeling that contract medicine *as it now exists* is the one thing that prevents a full cooperation in a common cause and a belief that its continuance will be a big factor in bringing in State Medicine. Even some of the men who hold individual contracts believe society contracts, if any, are preferable and would willingly give up their contracts, if they were sure others would do the same.

Even if a greater experience in industrial surgery might seem to make them better qualified, in a comparatively few, least-common accidents, than some not now doing industrial surgery, their primary equipment is no better than that of the majority of the profession and in a profession fully organized they would receive recognition as consultants with corresponding remuneration. If they are able to render superior service, the "free choice of physician" would give them the greater share of such work on the basis of fair competition. Moreover, the men under contract would have a wider range of consultants, thus assuring them of the ultimate in service.

I am sure that the national administration in its plans for greater economic security is going to demand that the

medical profession conduct its affairs on the basis of fair competition between its members and service to the public at prices they are able to pay. I am equally sure that the administration is willing the doctors should make their own plans and execute them, but if we do not, they will make them for us and that will mean State Medicine. Since my trip, I feel certain that the above represents the feelings of the majority of the profession. We must consider them.

The efforts of the irregular practitioners of healing to defeat the Basic Science Law and gain entrance to our hospitals and what they call "equal rights" in treatment, though they do not offer equal preparation, led some of the men contacted to ask why the State Association could not do something definite at least to eliminate many who are not even licensed under the various cults. It is something for the State Association to consider, though probably each county society can best handle the investigation and get the facts. I realize that the charges of "persecution" can best be assumed by the State Association. Perhaps one of our present committees can study the problem and bring recommendations to the State Association.

Just another thing that can be done, if we will forget ourselves and work for the good of the profession. Many states employ an executive secretary who gives his whole time to the profession. My trip has convinced me that such a man could constantly contact the component county societies in a way that no president engaged in the practice of medicine can do and bring to the state organization the feeling and desires of individuals and societies for the State organization to study, taking back to the component societies the results of such study.

This column, I feel sure, is going to afford a splendid means of contact for each society and I will welcome suggestions to be incorporated in it. It furnishes each committee a chance to present their work to the members of the Association and I urgently ask them to forward material to NORTHWEST MEDICINE by the 25th of the month. Just this morning I received a letter from Dr. Trueblood, chairman of the Neoplastic Committee, saying that his committee, while continuing their studies along the lines laid down when the committee was organized, would be glad to furnish programs to county societies on subjects already covered in their studies. The subjects are "The Breast," "Female Pelvic Organs," "Radiology," "Tumors of the Urogenital Tract," "Tumors of the Bone," "Tumors of the Eye, Nose, Throat and Nasal Accessory Sinuses." Address Dr. Donald V. Trueblood, 625 Medical Dental Building, Seattle.

Please don't forget your contribution to the fund for committee work. Further, don't forget that this is legislative year and our efficient Public Health League needs your support. I heartily endorse their present plans. They have been selected by your representatives in the House of Delegates to carry on at Olympia.

We are commencing to make plans for the State meeting in the fall. If any of you have papers which you would be willing to present on the program, please notify Dr. Curtis Thompson, Cobb Building, Seattle. We will keep you informed as to the exact date and other details of the arrangements, as soon as plans are definitely laid.

NATHAN L. THOMPSON,
President Washington State Medical Association.

WOMAN'S AUXILIARY

Walla Walla, Wash., January 24, 1935.

The auxiliary to Walla Walla Valley Medical Society is in the process of developing a rather interesting feature. A series of broadcasts sent from *Hygeia* is presented each Sunday afternoon over Radio Station KIJ, delivered by the physicians of the society. Any first class radio station will gladly welcome and give the time to an interesting instructive program and these talks are decidedly both interesting and instructive. Last year a five minute period was arranged, and so much intelligent attention was shown by the listeners (telephone calls, letters and even telegrams), that the manager of the station asked to have the time increased this year to fifteen minutes. KIJ is a decidedly commercial station. Their time is paid for on a rather large scale, due to the fact that for perhaps ten or eleven hours of the twenty-four they are the only station that can be satisfactorily heard over a radius of 200 miles. The talks are designed for and understood by the laity, and while the physician himself delivering them may think them too simply expressed, yet they have been shown to have reached the public. I am sure any one of the fourteen chapters of the state could contact their own radio station, and have the same response that Walla Walla has had.

It is interesting to note the joint meetings that are being held by Pierce and King counties. Of course, it is easier for them to get together once or twice a year than for the other chapters, but Wenatchee and Yakima could, Everett and Whatcom, and perhaps others. It would certainly give a decided stimulus to any organization to come in contact with a group having the same ideals, the same aims but possibly different ideas.

Judging from the clippings that have been sent in to the press and publicity chairman, the auxiliary is taking an interest in legislation. The December number of *NORTHWEST MEDICINE* carried an article from the Oregon auxiliary which was quite an eye-opener. The systematic campaigns that an intelligent well instructed group of women can carry on is practically limitless. Several of the chapters throughout the state report talks and papers on legislation. This next month there will doubtless be more. Clippings are being faithfully sent in by some of the chapters, but others are neglecting to do it. I hope by March or April to give more details of the various meetings.

The auxiliary regrets exceedingly the withdrawal of the Whitman county group from the state society. It has been an uphill pull for them to carry on as long as they have, and the state officers and board members wish to extend their thanks to them for their work. In a few years, perhaps, they will be able to take it up again. In the meantime it may be possible to cooperate with either the Spokane or Walla Walla Valley societies. It might be arranged to have at least two yearly meetings with one group or the other. Mrs. Frank C. Robinson, president of the Walla Walla Valley Auxiliary, has extended an invitation to them.

May I ask that the county presidents again speak of the clippings and notices that are to be sent in to me. It might be better that a copy of the minutes of all outstanding meetings should also be sent. *NORTHWEST MEDICINE* has given this space to the auxiliary, and it is plainly shown that this is one way for each chapter to know the other.

MRS. ROSCOE W. SMITH,
Chairman Press and Publicity.

IDAHO

MEDICINE IN IDAHO IN 1934 AND 1935

Twin Falls, Ida., January 20, 1935.

Let us talk together about the practice of medicine in Idaho in 1934 and 1935. Accepting it as an established fact that we will practice for that length of time, it is in point to ask why we are practicing medicine. It would seem that there are two primary reasons. (1) We can adhere unabashed to an idealism that asserts the first basic reason for being a doctor is that we like it; we love to see the ills that flesh is heir to get well under our management; we are thrilled, even exalted when our research brethren penetrate further into the dark unknown concerning natural phenomena. (2) We need neither boast nor apologize for the fact that the second basic reason for practicing our profession is to make a living, and one commensurate with the value of the services which we render to society, and a living fitting to the dignity of a learned profession.

There is room for wide divergence of opinion as to what changes and how extensive are inevitable in the set-up of medicine in the social and economic scheme. Some changes will occur if progress continues. But are we to lie supine and at cross purposes while the socialistic-like juggernaut crushes and intimidates us to where we will take orders like serfs of Russia? Already the influence of the American Medical Association is evident in the increasing insistence that the time honored relation of physician and patient must be preserved and the increasing acceptance of that standard by current writers and thinkers on medical

economics, even from the ranks of those tainted with socialism. This is but a beginning of what we can do to protect and advance ourselves.

Here in Idaho we face a new session of our legislature with its opportunities and threats that concern our profession and our guardianship of public health. Outside of gross mismanagement of our interests nothing can keep us from getting what we properly want and should have except the embarrassment of being told that we represent only one-half of the profession in the state. Mathematically that is true; in spirit it is not true. A truly large group of doctors in Idaho, not now members of the Idaho State Medical Association, consider themselves as with us and of us and look to us to represent them, but simply neglect to maintain official dues-paid membership. There must be over 100 such men. We must get them inside the fort. Were they within and part of the garrison, many probable attacks upon us would be abandoned because of our known force. At this session of the legislature we expect to again introduce a bill intended to improve our public health administration; in fact one might almost say to create a public health department because:

1. At present we have none in Idaho. There is a bureau of public welfare with no doctor employed therein and there is no set-up in the present law which requires that there should be one.

2. With the bias of the present administration of the Welfare Department public health matters are ignored.

3. Under the present regime our death rate is constantly increasing, whereas that of the whole nation is decreasing.

4. In Idaho today we spend less than one-tenth as much per capita for health work as is the average expenditure for health in the nation.

5. Typhoid fever, always a community disgrace, is on the increase in Idaho and we now have as many typhoid deaths per year as there are cases in other western states.

6. In one of our state institutions, at Nampa, conducted by the department of public welfare, a small-pox epidemic is raging, due only to the brutal indifference or the abysmal ignorance of those persons responsible for the policy of the department.

7. Due to the same state of someone's mind our streams and lakes are fast becoming putrid with sewage and we are a menace to ourselves and our neighbors.

8. Railroad trains are not allowed to make use of drinking water from a number of Idaho cities.

9. Streams and lakes should be designated as to purpose and use and protected accordingly. At present many of our best streams are so putrid that they are not purified by natural flow.

Our legislature is now in session. We are ably represented there by one doctor in the Senate and two in the House. An adequate and simple bill will soon be ready and introduced. The only reason it can fail will be the neglectful indifference of our own members to sell it

to their senators and representatives as the product of our zeal in behalf of public welfare.

Will you permit me to urge upon you for the benefit of your local society and of your state society the stimulation, fostering and assistance of the Woman's Auxiliary. The value of this organization is not yet fully appreciated in Idaho. It is just as valuable a partner to the medical societies as each wife is valuable to her husband doctor, and, if we will just break down and be real honest, we will admit that value is beyond estimation. In the dissemination of information that will create public opinion favorable to us and to our projects there can be no agent so effective and partisan to our interests. To create interest in and attendance at medical societies and friendliness between the members the Auxiliary is of tremendous importance.

Of course, you wish to continue to practice a profession instead of plying a trade; of course, you wish to continue to live on the scale of a member of a learned profession; of course, you wish to be master of your own destiny and life rather than a clock puncher; of course, you wish the state in which you practice medicine to rise above the lowest level of health administration in the nation; of course, you wish to continue to defend your profession against quackery and cults. If you do wish these things, join and induce others to join the Idaho State Medical Association.

CHARLES A. SCOTT,

President Idaho State Medical Association.

BOOK REVIEWS

THE MEDICAL AND ORTHOPEDIC MANAGEMENT OF CHRONIC ARTHRITIS. By Ralph Pemberton, M.S., M.D., F.A.C.P., Professor of Medicine, Graduate School of Medicine, University of Pennsylvania, etc., and Robert B. Osgood, A.B., M.D., F.A.C.S., John Ball and Buckminster Brown, Professor Emeritus of Orthopedic Surgery, Harvard Medical School, etc. 403 pp. \$5.00. The Macmillan Company, New York, 1934.

In words of the authors, "the effort has been made to present a perspective of the syndrome of chronic arthritis, in which etiology, pathology, physiologic disturbances and treatment of the disease are seen in their respective relations one to another as constituting a whole." In presenting the material the authors have followed, in a general way, the "Concept of Arthritis" and the "Primer" on arthritis issued by the American Committee for the Control of Rheumatism, but they have unhesitatingly developed certain of their personal beliefs. Each chapter is dealt with fairly-mindedly, arguments being presented in detail. Bibliographic references follow each chapter, a decided advantage. The general discussion at the end is more than a summary; it is a sort of philosophy of arthritis.

Only two conditions are under discussion in this book, namely, atrophic and hypertrophic arthritis. This keeps attention centered on these conditions and one does not get lost in the multitude of allied states. Noteworthy are the chapters on pathology, on physiologic disturbances associated with arthritis and the various chapters on the orthopedic approach to the problem of arthritis. Emphasized throughout are the constitutional aspects of the disease. In line with modern thought is the complete conservatism in evaluating the importance of foci of infection and the value of vaccine and drug therapy. The chapters on the gastro-

intestinal and dietary factors in arthritis will be challenged by those who have always challenged one of the authors on these factors.

This book will have a varying interest in spite of its entire worthiness. Those who want a simple discourse on a settled subject will be disappointed. Those who look at arthritis from one angle only will object to the lack of enthusiasm for their angle. Those who study the book with warranted care will not be disappointed, even if they do not always agree with the authors. Those who are looking for a concept of arthritis to help them in understanding and treating their arthritic patients will be rewarded, if they pursue the interesting development of the subject as presented.

C. P. WILSON.

YEAR BOOK OF GENERAL MEDICINE. Edited by George F. Dick, M.D., Professor of Medicine, University of Chicago; Lawrason Brown, M.D., Chairman of the Medical Board, Trudeau Sanatorium, Saranac Lake, New York; George R. Minot, M.D., S.D.; F.R.C.P. (Hon.) Edin.; Professor of Medicine, Harvard University; William B. Castle, M.D., A.M., Associate Professor of Medicine, Harvard University; William D. Stroud, M.D., Professor of Cardiology, Graduate School of Medicine, University of Pennsylvania, and George B. Eusterman, M.D., Chief of Section in Medicine, Mayo Clinic. 843 pp. \$3.00. Year Book Publishers, Inc., Chicago, 1934.

This medical volume is a comprehensive abstraction of outstanding treatises appearing in the current literature during 1934. The editors are teachers and clinicians of outstanding repute who have incorporated the most illuminating discussions in the fields of diseases of the chest, the blood and blood forming organs, the kidney, the heart and blood vessels and the digestive system and metabolism. The abstracts are brief and in the easy manner one can quickly pick up the latest information on advancements in the respective medical fields. As an example, under the

head of hypertension one will read about the human capillaries in health and disease, the blood pressure gradient in peripheral arterial system, changes of blood pressure as given over a seven-year period, functional or preclinical stage of essential hypertension, malignant hypertension, the medical and surgical treatment of hypertension and its associated diseases such as angina pectoris, etc. In a comparatively short time one can review the entire volume and gain a much more complete knowledge of the latest refined attitude towards each disease than can be done by months of constant perusing through the current literature. The volume makes it possible for physicians to keep abreast with the latest information in medical fields which they would be hardly able to do generally by any other method. It is highly recommended and well worth reading.

BOWERS.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Edited by Louis Hamman, M.D., Visiting Physician, Johns Hopkins Hospital. 326 pp. \$3.00. Vol. IV, Forty-fourth Series, J. B. Lippincott Company, Philadelphia and London, 1934.

This volume presents papers from twenty-one contributors connected with various medical institutions of this country, dealing with medicine, surgery, obstetrics and gynecology, pathology, ophthalmology and dermatology. Subjects are considered that are rather unusual but treated on the latest principles. Marble discusses nondiabetic glycosuria, emphasizing that such patients must be followed for a series of years, being observed at first at monthly and later at yearly intervals. Hurwitz discusses stumbling-blocks in the treatment of allergic asthma by desensitization. The largest percentage of failures seems to be the patients who have superimposed sinusitis and bronchial infection. Fever therapy in neurosyphilis is considered by Tobias with the conclusions that inoculation malaria has advantages over other methods of physiotherapeutic methods of hyperthermia, since biologic therapy brings into play certain forces that cannot be activated by chemotherapy alone. Holman discusses treatment of arteriovenous communications with descriptions of effective means for their relief. Other equally interesting matters are considered.

ESSENTIALS OF HISTOLOGY. Descriptive and Practical for the Use of Students. By Sir E. Sharpey-Schafer, F.R.S. Formerly Professor of Physiology in the University of Edinburgh. 13th Edition. Edited by H. M. Carleton, M.A., B.Sc., D.Phil., Lecturer of Histology in the University of Oxford. 618 pp. \$5.00. Lea & Febiger, Philadelphia, 1934.

A book that has been in existence for fifty years and passed through thirteen editions must necessarily possess value of a permanent character. A knowledge of histology is essential for every student and practitioner of medicine. This needed information can be acquired nowhere with more facility than by the study of this volume, for herein are the essentials presented concisely, in a most interesting and attractive manner. The book is profusely illustrated, nearly every page presenting a vivid description of histologic structure which is amplified in the text. This book is not only invaluable for the medical student, but any practitioner could profitably devote the time necessary for its perusal, thus calling to mind many forgotten histologic facts which would be of use to him.

MEDICINE. A Voyage of Discovery. By Josef Löbel, M.D. 334 pp. \$3.00. Farrar & Rinehart, New York, 1934.

Books describing medical facts with popular descriptions of disease have appeared frequently in recent years. There seems to be a demand on the part of the public for information on medical matters which has been gratified by these publications. This volume offers a group of interesting essays on a variety of medical topics such as medicine, biology, anatomy, physiology, surgery, endocrinology and others. Each touches on historical facts, disclosing the origin of this particular branch of medical science, showing its development and contrasting the primitive views of our ancestors with the scientifically developed knowledge of the present day. It seems fantastic, for instance, that in the Napoleonic era doctors should be ridiculed who presumed to record pulse and respiration and who ignored the significance of bloody sputum in pneumonia and other symptoms, the common knowledge of the medical student of today. The author has a fascinating style and presents in an entertaining manner the development of scientific knowledge which emphasizes the transformation in medical science that has developed during the past century and particularly during the last fifty years. If either physician or layman seeks an attractive description of medical progress, he will be fully gratified in reading this volume.

I KNOW JUST THE THING FOR THAT. By J. F. Montague, M.D. 265 pp. \$2.00. John Day Company, New York.

This book is dedicated to "patients without doctors and doctors without patience." It is intended primarily for the consumption of laymen, most of whom think they know facts concerning conditions of disease, a large proportion of which is incorrect. The author discusses in an informal and nontechnical manner many conditions experienced by everyone, such as that tired feeling, the crime wave in cathartics, headaches and dizzy spells, pardon the belch, dreams and sleeplessness. Neurasthenic and imaginative conditions are explained as the cause of many disabilities. "What is one man's food is another man's poison" is illustrated by the divergent advice given for the same condition by different doctors and the contrary results obtained in different patients by the same line of treatment. Since the author specializes in the treatment of intestinal conditions, the necessity of colonic therapy is frequently introduced. While this volume offers little of information to the medical practitioner, it would interest the lay reader.

SURGICAL APPLIED ANATOMY. By Sir Frederick Treves, Bart. Ninth Edition, Revised by C. C. Choyce, G.M.G., C.B.E., B.Sc., N.Z.; M.D., Edin.; F.R.C.S., Eng.; Professor of Surgery, University of London, etc. 720 pp. \$4.00. Illustrated with 174 figures including 66 in color. Lea & Febiger, Philadelphia, 1934.

This recognized medical classic, which has been reviewed at intervals for over fifty years, is now issued in attractive form and contains material not to be found in a similar presentation elsewhere. As an expanded compendium it was originally in demand by advanced students and surgical practitioners of the time. Today it is a complete book of anatomic factors with a modern application to surgical practice, but still retains its original compact and at times somewhat narrative form.

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THE 1934 YEAR BOOK OF RADIOLOGY. Diagnosis Edited by Charles A. Waters, M.D., Associate in Roentgenology, Johns Hopkins University, etc. Therapeutics Edited by Ira I. Kaplan, B.Sc., M.D., Visiting Radiation Therapist, Bellevue Hospital, New York City, etc. 512 pp. \$4.50. The Year Book Publishers, Inc., Chicago.

The first half of this book is devoted to radiologic diagnosis, taken up under the heads of the various systems of the body. Particular emphasis is laid on the newer developments in calcium metabolism, derangements of internal secretions and the use of various dyes in roentgenology. Also a very good resume is presented of the relationship of the roentgenologist to hospitals and to the medical profession.

The last half is devoted to therapy. This is particularly valuable to the general surgeon as it gives in brief form the general trend of radiation therapy as shown by statistics of large numbers of cases, both from abroad as well as in America. The authors are careful not to give their personal views except to express agreement or disagreement with some of the articles quoted. Such a broad viewpoint cannot help but be beneficial in letting the profession in general know what is being accomplished in the science of radiology. H. B. THOMPSON.

FRENCH MEDICINE. By M. Laignel-Lavastine, Professor in the Medical Faculty in Paris, etc., and M. Raymond Molinry, Gold Medalist of the Academy of Medicine, etc. Translated by E. B. Krumbhaar, M.D., Professor of Pathology, University of Pennsylvania. With 14 illustrations. 187 pp. \$2.50. Paul B. Hoeber, Inc., New York, 1934.

This booklet offers a condensed review of medical French history, beginning with early civilization and different leaders of the beginnings of French medicine, a period when hospital treatment had its origin. Scholastic instruction began in the middle ages when most of the ancient schools had a "Faculty of Medicine." Teaching was not entirely from books and some dissections were made. French Renaissance in medicine dates from the time of Rabelais who began practice in 1537. Following him many familiar names are noted, Paracelsus, Par, Descartes and many other distinguished French physicians and surgeons well known to all practitioners. Entering the nineteenth century Pasteur, Widal, Charcot and other famous leaders are featured with reference to the great works which each accomplished. The chapter on military, naval and colonial medicine describes the widespread activities of the French leaders. This booklet, one of the *Clio Medica* series, is suggestive of much historical information.

HOW TO PRACTICE MEDICINE. By Henry W. Kemp, M. D., New York. 156 pp. \$2.00. Paul B. Hoeber, Inc., New York, 1935.

This volume presents a summary of the personal experiences of a successful physician and offers many useful suggestions to the beginning practitioner. If an older doctor wishes to advise the embryo physician, he could do no better than suggest this book. Here is discussion of the office and its equipment, one's car and professional appearance, office consultation, religion and politics, confinements and many other facts pertaining to the successful practice of the profession. Many bits of advice are proffered. "Have one God, one office, one wife and one price and you will be saved most of the annoyances in life." Stress is placed on personal appearance, neatness, cleanliness. "If you feel that you wish to wear a mustache, wear a real one, don't wear a 'Charlie Chaplin', or 'misplaced eyebrow'." "Do not attend your patients' funerals nor send flowers." The author's style is snappy and the diction entertaining. The book is replete with timely suggestions.

PRACTICAL EVERYDAY CHEMISTRY. How to Make What You Use. By H. Bennett, F.A.I.C., Editor-in-Chief of The Chemical Formulary. 305 pp. \$2.00. The Chemical Publishing Company, New York, 1934.

This is not a medical book, but is intended for the use of anyone of a handy disposition who wishes to construct something with his own hands. Its content is suggested by the headings of some of the chapters, such as adhesives, cosmetics and drugs, lubricants, soaps and cleansers. Formulae are given for the production of almost every imaginable article of daily use. The book is convenient for reference if one desires to know the composition of ordinary household articles whether for personal use as well as those for dietary and sanitary purposes.

COLWELL'S DAILY LOG FOR PHYSICIANS. By John B. Colwell, M.D. Colwell Publishing Company, Champaign, Ill., 1935. \$6.00.

This is a convenient doctor's record book, consisting of a daily page record of patients, services and finances. At the end of each month is a business summary, expense sheet, personal account and surgical record. Special records for obstetric cases and an annual spread of expenses is found at the end. The daily record and monthly summary will provide an easy reference to determine the physician's financial affairs.

SURGICAL TREATMENT OF ULCERATIVE COLITIS. Richard B. Cattell, Boston (*Journal A. M. A.*, Jan. 12, 1935), points out that surgical treatment is of value in ulcerative colitis, particularly in the chronic cases complicated by fistulas, intestinal obstruction and recurrences of the acute exacerbations of the disease. In these cases the colon has little possibility of carrying out its function and serves as a constant source of infection. Transverse ileostomy may result in a remission. When performed, it must be considered permanent. It is of greatest value in the chronic cases but may be necessary in the acute cases. Complete colectomy may be necessary for relief and can be done with a low operative mortality if performed in divided operations. It has been carried out in three patients, who have remained well for one year. Partial colectomy can be done in selected cases if the involvement is definitely limited to one segment of the colon. It was performed in six patients in this series. Ileostomy and colectomy are not suggested to replace the medical treatment of ulcerative colitis but are presented as an aid in the management of the intractable and complicated cases.

TREATMENT OF PERFORATED "PEPTIC" ULCERS. Hugh H. Trout, Roanoke, Va. (*Journal A. M. A.*, Jan. 5, 1935), discusses the acute perforations that demand immediate operation. The deductions reached are based largely on personal experience in the treatment of forty-one such cases. This experience has been greatly influenced, however, by numerous visits to other hospitals, conversations with other surgeons, and a careful review of the literature. Of course it is generally conceded, even by the most radical adherents of the nonsurgically inclined of medical men, that surgery offers the best hope of recovery. Therefore, the author confines his discussion to surgical intervention in this condition, considered under the following three headings: (1) drainage after closure of the perforation, (2) advisability of immediate gastro-enterostomy following closure of perforation and (3) treatment of perforations on the posterior wall of the stomach and duodenum associated with hemorrhage, from which he draws the following conclusions: 1. Drainage of the peritoneal cavity should be avoided if possible. 2. Continuous gastric suction through a nasal tube has decreased the indications for an immediate gastro-enterostomy.

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LARGE QUANTITIES OF FLUIDS INTRAVENOUSLY

PRINCIPLES AND PRACTICE FOR THEIR USE*

C. R. JENSEN, M.D.
SEATTLE, WASH.

In recent years the indications that are being found for the use of large quantities of fluids intravenously have become so manifold and the actual use of this form of therapy has become so widespread that any physician attempting to introduce some degree of intelligent system into his practice in this field is confronted with a veritable maze of conflicting reports, embracing theory, animal experiment, and human therapeutic application. To judge from many of the clinical reports, there is not always a thorough understanding of the physiologic processes involved by the introduction of fluids into a vein, and this paper is an attempt to outline some of the underlying principles which should guide us in our choice of fluids and in their administration.

Not many years ago, the parenteral administration of large quantities of fluid in the human patient was confined chiefly to the use of isotonic salt solutions subcutaneously. This very useful procedure, which has suffered an unjust neglect of late, was relatively safe because the solution was deposited beneath the skin, where the body could draw upon it as needed, and if it did not so draw upon it, no serious harm was done. The present popularity of the intravenous route is due in part to the increased

comfort to the patient but chiefly to the greatly increased scope afforded the physician in his efforts to influence certain aspects of body chemistry and fluid balance. With these increased advantages of the intravenous over the subcutaneous route, however, there is a distinct increase in the hazards, and a realization of this together with an understanding of the principles involved would seem obligatory for any doctor assuming the responsibility of giving fluids by vein.

CAPILLARIES, TISSUE FLUIDS AND BLOOD

It is well to remember that in giving fluids intravenously we are not pouring them into a closed, rigid circuit of tubes. Mechanically considered there are two features of the blood vascular system which must be kept in mind. First, the walls of this system are elastic so that the total volume of fluid within them may be varied within moderate limits; second, there are two important "valves," so to speak, in this circuit, (a) the walls of the general capillary bed connecting it with the body tissues in general, and (b) a specialized portion of this capillary bed, the kidneys, connecting it with the outside. Generally speaking, these valves are beyond our control and anything we introduce into the blood stream will be rapidly subjected to their influence. We must understand as well as possible some of the physicochemic principles governing the action of these valves before we can appreciate the principles governing the intravenous use of fluids. Let us first remember that a complete circuit of blood through this system takes on an average about twenty-

*From Department of Pathology, King County Hospital.

three seconds. Thus, anything introduced into the circuit will be distributed in a short time throughout the body and exposed to the action of the capillary walls.

For the purposes of this discussion, let us consider for a moment only the properties of these capillary walls which affect the passage of fluids through them. The capillary walls act in part as a semipermeable membrane. Material in solution may pass through normal wall from blood to tissue or the reverse, if it is diffusible. Blood plasma and tissue fluids are alike in that they both contain about the same concentrations of diffusible substances which are the salts (electrolytes) and other solutes such as urea, sugar, etc. They are unlike in that the blood plasma contains in addition the nondiffusible plasma proteins which are colloids.

These colloid proteins cannot pass the normal capillary membrane and their presence on the blood side of the membrane is the chief reason for the so-called osmotic pressure of the blood. The diffusible solutes likewise exert osmotic pressure, but as long as their concentration is the same on both sides of the capillary membrane, which is the normal condition, their osmotic effects are in balance. The hydrostatic pressure within the capillary (the capillary "blood pressure") tends to force water and its diffusible solutes out; the counteracting osmotic force of the colloids within the stream tends to draw them in and/or to hold them there. Normally these two forces are in balance.

When fluid is introduced into the blood stream, the vascular channels, because of their elasticity, readily adapt themselves to the increase in blood volume thus resulting. The blood volume is for the moment increased. Further, if the fluid introduced is other than blood, a mixture results differing in some degree from the blood formerly there, and the "balance" previously existing between blood and tissues is disturbed. If this balance was previously of the normal type, the body will attempt to rectify this disturbance as soon as possible and return to the normal state. If it was not previously in the normal state, and usually we do not attempt to interfere otherwise, our attempts to introduce fluids should be made only with the intention, intelligently conceived, of assisting the body's efforts toward recovery to normal. As stated above, fluid introduced into the circulation, or rather the resultant mixture of the fluid and blood, is immediately subjected to the action of the two valves. The one, the general capillary bed, is large and potentially of very quick action, a matter of seconds or minutes;

the other, the kidneys, is smaller, and more deliberate in action and more selective in a chemical sense.

Summary

Osmotic balance exists between blood and tissue fluids, and the immediate disposition of any fluid given intravenously depends upon the concentration in that fluid of colloids and of electrolytes and other diffusible solutes.

In order to better understand the bearing of these matters on the subject under discussion, the fluids commonly used will be taken up separately.

DEXTROSE

Dextrose may serve as food, in which case its action is inseparable from the part it plays as a source of glycogen. It also has the property of binding water to some degree and thus may attract water to the tissues, to the blood or to the urine. The dominance of any one of these actions will in part depend on its concentration and speed of delivery into the veins. It is also a specific remedy for at least one type of acidosis, and is perhaps capable of stimulating smooth muscle contractions. It is sometimes administered with these properties in mind.

When a single injection of dextrose is made in the normal individual, there is an immediate rise in the concentration of sugar within the blood. Because dextrose is highly diffusible, however, the excess in the blood passes quickly out into the tissues. During its short stay in the blood stream it attracts some water to the blood because of its water binding (osmotic) properties. A temporary increase in blood volume occurs.

This is soon rectified in the normal individual following the injection of a single dose, by two forces: (a) some of the injected sugar passes from the blood to tissues, and water held by it in the blood passes into the tissues with it; (b) if the concentration of sugar in the blood has exceeded the renal threshold, some of the injected sugar is excreted through the kidneys, carrying water with it (Because of this latter phenomenon, dextrose given intravenously is sometimes spoken of as a diuretic or in some cases as a dehydrating agent.) Both valves may operate to restore the organism to normal. However, as Woodyatt and his collaborators^{1, 2, 3} have so carefully demonstrated, when dextrose is

1. Woodyatt, R. T.: The Method of Timed Intravenous Injections, *J. Biol. Chem.* 29:355-366, March, 1917.

2. Woodyatt, R. T., Sansum, W. D. and Wilder, R. M.: Prolonged and Accurately Timed Intravenous Injections of Sugar, *J. A. M. A.*, 65:2067-2070, Dec. 11, 1915.

3. Erlanger, J. and Woodyatt, R. T.: Intravenous Glucose Injections in Shock, *J. A. M. A.*, 69: 1410-1413, Oct. 27, 1917.

administered slowly enough to be within the limits of chemical tolerance of an individual so that glycosuria is avoided, the end-results are somewhat different.

If the dextrose, *regardless of its concentration*, is delivered into the veins at or below a rate of 0.85 gm. per kg. of body weight per hour, passing into the tissues it undergoes chemical utilization at the same rate as that of the injection. No dextrose, as such, accumulates in the tissues and so there is no "water binding" by it there and none appears in the urine. During this injection at a subtolerant rate, to quote from Erlanger and Woodyatt, "a state of hydremic plethora develops and presumably persists as long as the injection is sustained. The water held by the blood must come from the tissues or from the injection or both. If the water injected with the dextrose is not sufficient to satisfy the dextrose in the blood, some water will flow into the blood from the tissues."

When the injection ceases and the concentration of dextrose in the blood returns to the level of concentration in the tissues, the excess water temporarily held in the blood by the dextrose will pass back into the tissues or out through the kidneys. Whether an appreciable amount escapes through the kidneys will depend upon the amount of water given with the injection; the amount of water thus given represents extra water in the body after the dextrose which it carried has been used.

When the rate of injection exceeds this rate of 0.85 gm. per kg. of body weight per hour, the renal threshold is exceeded and so some of the excess dextrose will appear in the urine with the water demanded for its excretion; some of it passing into the tissues at a rate greater than that at which it can be completely utilized will tend to bind some water there. However, because the concentration in the blood is always greater during the period of injection and for a short time thereafter, the increase in blood volume will be maintained during this time.

A detailed rehearsal of these actions of dextrose in the normal individual is given because they form the underlying principles from which its action in any given pathologic state may be deduced. An abnormal carbohydrate metabolism (as in diabetes mellitus), or abnormal kidney function, either organic (nephritis) or functional (shock) will correspondingly modify these actions. Some of these will be dealt with later.

It will be seen thus far that we may give dextrose

intravenously for one of several reasons, and that the manner in which it is given should depend upon the effects we wish to secure. To specify the concentration of the solution we wish to use may be fruitless, if at the same time we fail to specify the speed at which it is to be given. The important end-results of dextrose given intravenously depend largely on the degree of utilization in the tissues, and this is a matter of *momentum* rather than of either *weight* or *velocity* alone. Thus, if an hour's time is consumed in giving 1000 cc. of a 5 per cent solution (50 gm. of dextrose) or 500 cc. of a 10 per cent solution (50 gm.) to a normal adult weighing 150 lbs. (68 kg.), the rate is 0.73 gm. per kg. of body weight per hour. All of the dextrose will be utilized; 1000 (or 500) cc. of water will have been given to the body to be retained or excreted according to the degree of saturation of the tissues. If only five minutes are consumed in the injection of 100 cc. of a 25 per cent solution (25 gm.), the rate per hour is 300 gm. or 4.4 gm. per kg. of body weight per hour. This greatly exceeds the utilization rate and much of that injected will pass out through the kidneys, taking with it more than 100 cc. of water originally given. Dehydration is thus secured.

Summary

We may give dextrose intravenously as a food, as a means of delivering water into the dehydrated organism, as a dehydrating agent, or as a means of temporarily increasing blood volume. Which of these effects will be secured will depend on the manner in which it is given.

SALT SOLUTIONS

The use of inorganic salt solutions intravenously may be confined in this discussion to the use of isotonic or hypertonic solutions of sodium chloride. The reason that solutions of sodium chloride may be used alone is that sodium and chlorine are in reality the chief inorganic ions of the body fluids. Ringer's or Locke's solutions represent refinements over isotonic sodium chloride but the general principles underlying their use are the same so far as concerns our present discussion. All of these inorganic salts are highly diffusible electrolytes when in solution.

Isotonic Salt Solutions. When isotonic salt solution is injected into the veins, the circulating blood is correspondingly diluted for a short time in respect to its colloid elements but essentially unchanged in electrolyte concentration. However, this dilution of the blood in respect to its colloid ele-

ments lowers its osmotic tension, and water with its diffusible solutes begins immediately to pass out into the tissues and continues to do so until balance is once more restored. The rapidity with which this occurs is not always appreciated. Smith and Mendel⁴ forced isotonic saline into the veins of rabbits in amounts equal to the animals' blood volume. The period of injection consumed only two minutes. Within five minutes after the injection had ceased, the blood volume had returned practically to normal and they were forced to conclude that most of the injected solution had disappeared into the tissues, since the kidney excretion during this time was insignificant.

Even such a quantity, which would be in excess of that used in human practice, may not represent the limit of storage for the body tissues. One practical application to be noted at this time is that no amount of isotonic saline alone could be used to increase blood volume. Even extreme amounts would result in generalized visible edema, including fatal edema of the lungs, before blood volume would be affected. An excess of isotonic saline thus given does no ultimate harm, even though kidney elimination be slow, unless it be carried to the extent of causing edema of the lungs.

Hypertonic Salt Solutions. When hypertonic salt solutions are injected, there is a temporary rise in the osmotic tension of the blood because of the increased salt concentration; fluid passes from tissue to blood. At the same time, because the sodium chloride is diffusible, some of it is passed into the tissues. At first, water is passing into the blood more rapidly than salt is leaving it and so there is a temporary increase in blood volume; within a short time, however, the salt concentration on both sides of the membrane will be equalized and the water previously drawn to the blood will have passed out again into the tissues. It cannot be stated definitely how long this takes because it will vary greatly with the amount and concentration of the solution used, with the state of hydration of the organism, etc. It has been estimated that in the normal human following the injection of about 100 cc. of a 30 per cent solution the adjustment is completed in not more than one to three hours. The effect on blood volume is, therefore, quite transitory. After this concentration of salt on both sides of the capillary membrane is equalized, there is no more osmotic imbalance between the tissue fluids

and blood stream so far as it may be affected by salt concentration. The salt which has passed into the tissues, unlike dextrose, remains there unchanged.

It will be seen thus far that, while dextrose and inorganic salts are similar in that they are each rapidly diffusible, the action of their hypertonic solutions injected intravenously may be quite different. To pursue the action of the salts further, when excess salt is injected in the form of hypertonic solution, the kidneys, which we have called our smaller valves, begin their attempt to excrete this excess. Before they can do so, however, the blood (and so the tissue fluids) must first be diluted to a salt concentration like that of normal plasma. Plasma of lower salt concentration than normal may filter its water and soluble materials through the kidney glomerulus, but plasma of higher salt concentration than normal cannot do so with any degree of efficiency. The total excretion of urine is diminished as the salt content of the plasma is raised. The reasons for this involve an explanation of renal physiology beyond the scope of this paper.

If the kidneys were able to act upon plasma of higher salt concentration than normal, saving some water and excreting salt, a man on the ocean without ordinary water would be able to survive by injecting sea water into his veins. We must have more water than salt in order to live; e.g., we must have relatively more water in our average intake of fluid than is present in isotonic saline (or blood plasma.)⁵ When the salt concentration of body fluids is increased beyond normal, as after our injection of hypertonic salt solution, the water for its dilution may be supplied by the tissue reserves and by water taken by mouth. If the salt concentration is very high, dilution with water to the point of clinical edema sometimes occurs before kidney excretion can proceed.⁶ This excretion may then proceed with rapidity.

While discussing salt solutions, it may be well to point out a further difference from sugars. Excessive concentrations of undiluted salt in tissues may be highly toxic. Convulsions and death occur rapidly.⁷ The exact mechanism of this action is in doubt but the fact itself is not. But if water for dilution is withheld in the presence of a steady

4. Smith, A. H. and Mendel, L. B.: The Adjustment of Blood Volume after Isotonic Solutions of Varied Composition, *Am. J. Physiol.*, 52:323-344, Sept., 1920.

5. White, H. L.: Effect on the Urinary Output of Water, Chloride, Inorganic Phosphate, Urea, and Ammonia of Varying Salt and Acid Content of Water Drunk, *Am. J. Physiol.*, 80:82-89, March, 1927.

6. Adolph, E. F.: Metabolism and Distribution of Water in Body and Tissues, *Physiol. Rev.*, 13:336-371, July, 1933.

7. Underhill, F. P., Kapsinow, R. and Fisk, M. E.: Studies on the Mechanism of Water Exchange in the Animal Organism, *Am. J. Physiol.*, 95:302-370, Nov., 1930.

rise in salt concentration, convulsions and death may result. Excessive administration of hypertonic dextrose could do the same thing, if carried to extremes; but the difference is due to the fact that some of the dextrose is being continuously destroyed in the tissues and to the fact that blood plasma with excess sugar in it may still be filtered through the renal glomerulus, even though the total urinary output diminishes with higher concentrations.⁸

Summary

Isotonic salt solution given intravenously passes into the tissues within a few minutes. Hypertonic salt solutions thus given draw fluid from tissue to blood temporarily but salt concentration in blood and tissue is equalized in not more than three hours. Excess salt in tissue and blood requires dilution with more water for kidney elimination.

DEHYDRATION AND STARVATION

Dehydration. In considering problems related to dehydration in patients it is of importance to stress the fact that measurements of water balance are a difficult task. As Newburgh⁹ has emphasized, the daily estimations of the quantity of urine excreted is quite deceptive as a guide to the amount of water gained or lost by a patient during a given period. Losses of water through feces and vapor (skin and lungs) involve calculations too elaborate to permit of ordinary use. They are necessary for certain scientific experiments and have been useful in convincing us that serious dehydration of patients may occur under our very eyes, so to speak, without our awareness.

One guide to dehydration is the symptom of thirst, which should never be taken lightly by the physician, but the patient is not always sufficiently conscious to be aware of thirst or to make his wants known.¹⁰ Comparative estimations of hemoglobin or red cell concentrations in the blood are not sensitive enough indicators because the body tries to maintain blood composition at the expense of the tissue reservoirs, and it is only in its comparatively severe stages that body dehydration may be detected in the blood.

However, there is a simple measurement which can be available if necessary in guiding our ad-

ministrations of water and that is the determination of the specific gravity of the urine. If kidney function is unimpaired and the urine remains consistently diluted, we may be sure that the water content of the body tissue is sufficient; on the other hand, in chronic renal insufficiency the urine may remain dilute, may be "fixed" at about 1.010, because the kidneys are unable to concentrate further, regardless of dehydration in the body. But with this one exception of kidney disease in mind, we may use the degree of dilution of the urine (specific gravity) as a safer guide than the total quantity, inasmuch as the excretion of an excess of a substance like dextrose might deplete the body of water in the presence of a high urinary output in total volume; but in such a case the specific gravity would remain high because of the high sugar content of such urine. When a loss of water occurs to the extent of 7 per cent of body weight, only a small reserve of "free" water in the body is left; such dehydration may actually result in albumin, casts, and red blood cells in the urine.

If the condition to be treated is one of water deficit alone, only water need be given. If it cannot be taken by mouth and it must be given by vein, something must be added to prevent the laking of blood corpuscles. The most practicable substance to use is dextrose. A 5 per cent solution is approximately isotonic. This would have to be given at a tolerance rate or less, as explained before, or "covered" with insulin, lest some kidney excretion of the excess be attended with water loss that would partially defeat the purpose. Large water deficits could quickly be made good by injecting at a subtolerant rate a 5 per cent solution of dextrose in water, but a certain degree of judgment would be required not to overdo it. The unrestrained administration of water by mouth may lead to so-called "water intoxication,"¹¹ and it is possible that such a condition might be caused even by the excessive use of water intravenously.

For practical purposes, however, some degree of salt deficit is usually present because of vomiting, so that the choice of isotonic saline has merit. Almost unlimited quantities of this can be given for a time without harm, even though it be less satisfactory than water as a thirst quencher for tissues. If excess quantities of isotonic saline are given unknowingly, the body may store the excess temporarily without much trouble, even though the kidneys have more difficulty with excretion than they do with similar quantities of water.

8. Sansum, W. D. and Woodyatt, R. T.: Studies on the Theory of Diabetes. Eight Timed Intravenous Injections of Glucose at Lower Rates, *J. Biol. Chem.*, 30:155-173, May, 1917.

9. Newburgh, L. H. and Lashmet, F. H.: Importance of Dealing Quantitatively with Water in Study of Disease, *Am. J. M. Sc.*, 186:461-471, Oct., 1933.

10. Fantus, B.: Prescribing of Dextrose Phlebotomy, *J. A. M. A.*, 102:2165-2170, June 30, 1934.

Summary

Next to water by alimentary tract, the most efficient method of combating simple dehydration is a 5 per cent solution of dextrose in water given intravenously. If chloride deficit is also present isotonic sodium chloride solution may be more useful. Neither solution alone should be continued indefinitely.

Starvation. It is difficult to separate a discussion of dehydration, which means water deficit only, from starvation, which implies both water and food. Intravenous fluids are used often with the idea of supplying both water and food. The use of food parenterally is, of course, confined to the use of dextrose.

Certain fundamental facts regarding dextrose metabolism should be kept in mind because changes in the concentrations of solutions may be desirable when the fuel value is sought. One gm. of dextrose completely burned in the body yields 4 calories. Let us say that 3000 cc. of a 5 per cent dextrose solution are given to a patient in twenty-four hours. I select this figure because I think it represents a fair estimate of the average quantity and strength of solution currently employed in postoperative treatment. One hundred and fifty gm. of dextrose, yielding 600 calories, are thus given. The nutritional effects alone of such a small quantity, while not entirely negligible, could scarcely be of crucial importance; and the physician should be under no delusion about the nutritive value of the solution he is using.

However, if dextrose must be given for the sake of its fuel value, it can be done. If the normal individual can utilize 0.8 to 0.9 gm. per kg. of body weight per hour delivered intravenously, in the person of average weight this would represent about 50 gm. per hour. Five hundred cc. of a 10 per cent solution of dextrose per hour could then be used without loss through the kidneys. If such an injection were continued for twenty-four hours, 12,000 cc. of this solution, yielding 4800 calories, would be given. Dextrose may be given a higher rate, if insulin is also given; in fact, the rather common practice of giving enough insulin to cover 20 to 30 per cent of the dextrose administered is usually a wise precaution, inasmuch as the patient's tolerance for dextrose is usually lowered somewhat by metabolic disturbances aside from diabetes mellitus, such as general anesthetics or fevers from any cause.

(To be continued)

TREATMENT OF SEVERE CONSTIPATION BY PHYSIOLOGIC SURGICAL RELEASE*

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Current literature confirms the established fact that interruption of the proper sympathetic pathways gives excellent results in Hirschsprung's disease. Although experimentation by Learmonth and his coworkers has demonstrated the correctness of Gaskell's physiologic concept of the innervation of the large bowel and its internal sphincter, the theoretical argument was based upon reports of clinical progress. We, ourselves, gained certain instructive information in our early lumbar sympathectomies for relief of such conditions as chronic arthritis, Reynaud's and Buerger's disease, at which time we noted incidentally that most of these patients were severely constipated, whereas removal of the lumbar sympathetic trunk almost invariably effected normal peristaltic function. This was found to be particularly true relevant to the left lumbar sympathetic chain. Consequently, in checking results for the first two or three years, the deduction was made that in no case, where the individual had had any degree of constipation prior to operation, was there any following sympathetic resection of the left lumbar trunk. This observation on the neurogenic etiology of a condition considered as intractable was felt to be of importance with regard to the advisability of doing lumbar sympathectomy for the treatment of obstipation.

The literature on this type of operation for adult constipation is rather meager; apparently the first results recorded were from Rankin and Learmonth,¹ also those of the author.² Since then the Rochester group has registered additional cases. In our present report are included ten incidences of severe constipation.

ANATOMIC CONSIDERATIONS

The anatomy of the neurodistribution to the rectum and distal colon has been quite accurately and definitely established, the reciprocal relation of the dual innervation by sympathetic and parasympathetic fibers. The sympathetic fibers pass from the ganglionated chain, especially from the left ganglia, to the superior hypogastric plexus, thence in close

* Read before the Forty-fifth Annual Meeting of Washington State Medical Association, Spokane, Wash., Sept. 10-12, 1934.

1. Rankin, F. W. and Learmonth, J. R.: Section of Sympathetic Nerves of Distal Part of Colon and Rectum in Treatment of Hirschsprung's Disease and Certain Types of Constipation. *Ann. Surg.*, 92:710-720, October, 1930.

2. Flothow, P. G.: Surgery of the Sympathetic Nervous System; Report of Fourteen Sympathetic Ganglionectomies. *Am. J. Surg.*, 10:8-18, October, 1930.

association with the blood vessels via the hypogastric nerves to the rectum, following the inferior mesenteric arteries to the colon, while a further supply enters the superior hypogastric plexus from above by way of the intermesenteric aortic plexus. This layout gives immediate surgical accessibility for the removal of sympathetic fibers to the rectum and colon; first, by interruption and excision of the left lumbar ganglionated chain only or bilaterally; second, by resection of the superior hypogastric plexus. Neither of these procedures separately succeeds in completely breaking the sympathetic innervation of the rectum and lower colon, and, therefore, in order to achieve denervation of these areas, it would be necessary to remove both of the lumbar ganglionated chains plus the superior hypogastric plexus. It is as yet undetermined which of these procedures is indicated, and which liable to be the more effective. An additional supply should be considered in the parasympathetic distribution, namely, through the second, third and fourth sacral nerves below, and from the vagus nerves above.

PHYSIOLOGY

Let us briefly review the coordinated activity of the sympathetic and parasympathetic systems. The sympathetic fibers supply the contractile elements of the internal involuntary rectal sphincter, being the tonal innervators to this sphincter. Furthermore, they inhibit the parasympathetic action of the lower colon, which is that of the propulsive mechanism of the bowel. It is readily understood that, if these facts are correct, and if for some reason there is an overactivity of the sympathetic supply to the rectum and colon, the result will be an increased tonus of the rectal sphincter and inhibition of propulsive and expulsive reaction of the lower colon with resultant internal stasis. Thus the old sewage pipe conception of the colon has been replaced by the understanding of a neuromuscular organ. In other words, when the state of equilibrium is disturbed as by undue stimulation, the sympathetics inhibit peristaltic movement of the gut, while a like hyperactivity of the parasympathetics would be productive of increased action of the longitudinal fibers. Presupposing overactivity of the sympathetics alone, the propulsive is held in check as well as the expulsive. This being true, to reestablish the coordinating mechanism, the interruption of the sympathetic innervation of these areas should result in lessened tone, with a release not only of spasticity of the internal sphincter but also of the inhibition on the propulsive action of the parasympathetic

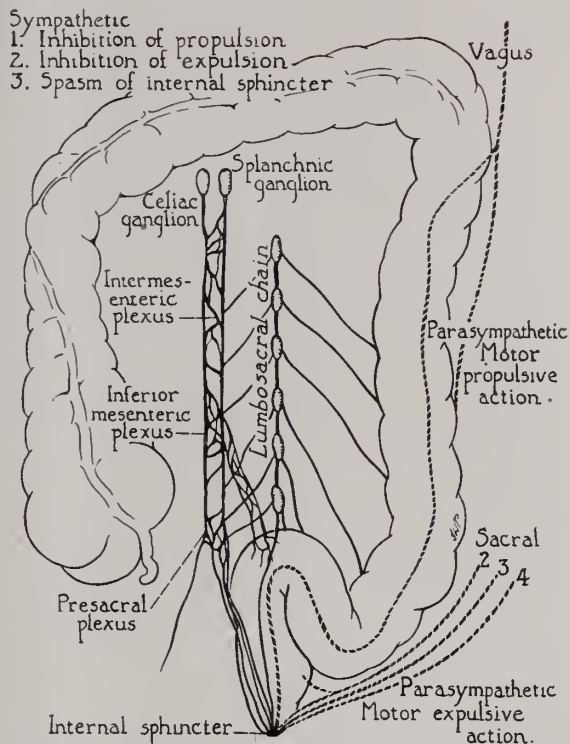


Fig. 1. Diagram illustrating the sympathetic and parasympathetic innervation of the large bowel, with the physiologic mechanism on which the operative treatment is based.

nerves, permitting parasympathetic action, which is primarily for the evacuation of the bowel, to be in control, and thus increased efficiency of this visceral motor mechanism (fig. 1).

The effect on the colon of deprivation of its parasympathetic (sacral) nerves has been observed on a series of cats by Adamson and Aird.³ Their observation bears out the above contentions on these reciprocal relationships. Although the alternative procedure is prolonged stimulation of the sympathetic nerves, these workers produced a gradual progressive megacolon by division of the parasympathetic antagonists. They pronounce as an indisputable argument of the neurogenic origin the fact of the occasional association of a dilated bladder with megacolon, for the only feature in common between the bladder and lower colon is their nerve supply.

If the above physiologic considerations are to be adjudged settled facts, and there is no dissenting note among scientists as to their truth, then we have a surgical procedure based entirely upon human physiologic concepts. It becomes a matter of changing the functional balance of a group of organs and substituting a preponderance of parasympathetic

3. Adamson, W. A. D. and Aird, I.: Megacolon: Evidence in Favor of a Neurogenic Origin. *Brit. J. Surg.*, 20:220-233, Oct., 1932.

activity for the heretofore predominant sympathetic activity.

SELECTION OF CASES

Notwithstanding the many cases which may exhibit pathologic physiology, the type of case suitable for this operative intervention is, and should be, rather infrequently encountered. There is no doubt in our minds that the vast majority of cases of constipation can be adequately controlled by medical means. Unfortunately as a profession we are so lax in our treatment of a condition in which the subjective sensation itself should be stimulating, that we allow too many of these subjects to develop a constipation habit rather than to provide proper medical measures for prevention. We are too ready to prescribe various cathartics and upon a history of constant purgation we are prone to agree with the patient that his case is a pronounced type. In time most of these individuals become artificially regulated, as it were, and do not require surgical measures. However, we find many cases which, even though the percentage of the whole is small, constitute a large number, in which, despite the most stringent and painstaking therapeutics, a degree of constipation still continues to be a menace to health and well being. On this premise we believe sympathectomy to be indicated.

It is imperative that a careful examination be made in order to eliminate any organic disturbance of the gastrointestinal tract responsible for maintaining this obstinate condition. Although neuro-pathic causation may show a mechanical factor, as in megacolon, hypertrophied rectal valves come strictly within the organic category and require other forms of operative procedure.

After an organic lesion has been ruled out, it will be found that practically all the remaining cases may be classified as a certain type, the individual who has been known and described as neurasthenic or neurotic. This subjective aspect is probably as much the result of their condition as it is the causative factor. Wetherell⁴ stresses the importance of taking into consideration the personality of the operative subject, making the observation as we have, that these patients are invariably of unstable temperament. He states that repeated reassurance following surgery is almost as necessary as the operation itself, a statement with which we are in accord.

Roentgenographic examination of the colon after barium enema generally discloses a definitely en-

larged rectum and rectosigmoid, amounting almost to a megacolon. Furthermore, we frequently find a definite spasticity of the bowel above the area of dilatation, a perfectly natural consequence of the inability of the bowel to evacuate properly. It is a compensatory function, since it becomes necessary for the bowel proximal to the atonic dilated area to put forth more effort in order to expel the contents, requiring a constant stimulation resulting in the so-called spastic bowel. At this point we enter a note of warning.

In our series of ten cases we record two failures, one a case exhibiting an extreme degree of asthenia. This type of individual "cannot understand why she looks so well; no one seems to believe she is sick." That our patient received no benefit from the operation we are convinced was due to the fact that she refused to exert the requisite effort in the performance of evacuation of the bowel. To expect this event to occur without any effort on her part whatsoever was to ignore the question of habit which is fundamentally correlated with the psychologic aspect.

Recapitulating the method of selecting suitable cases is based on history and present examination. That case is suitable which has received proper medical treatment and careful examination to rule out an organic lesion, with the provision that the physical condition is satisfactory. One must bear in mind that the operation would positively be contraindicated, were the condition not a definite menace to health and euphoria.

TECHNIC

To effect bowel action by sympathectomy the operator has choice of two technics. Resection of the superior hypogastric plexus requires a transperitoneal approach; the other method is extraperitoneal for removal of the left lumbar ganglionated chain. Although our experience has been entirely with the latter procedure, results reported are seemingly the same regardless of the mode employed. As already stated, neither method succeeds in completely interrupting all sympathetic impulses to the colon and rectum. It is our belief that this failure is in itself an advantage, since apparently sufficient impulse remains to maintain activity of the lower bowel and rectum at a practically normal level.

It is quite essential that the first lumbar ganglion be removed, for our results have been better when this ganglion has been removed than in that early group of cases where the operation was performed for some other condition and no effort was made to

4. Wetherell, F. S.: Effects of Sympathetic Nerve Surgery in Certain Intestinal Conditions. *Ann. Surg.*, 97:481-484, April, 1933.

remove it. Perhaps all of the efferent impulses contained in the large white ramus of the first lumbar ganglion are interrupted by removal of the plexus, but this is doubtful. The lumbar approach which is extraperitoneal is much safer than the transperitoneal and postoperative complications are far less frequent. We have performed this operation in over one hundred cases without a single death or serious complication, and have never had a postoperative hernia. This record should vouch for its safety. The technic for the extraperitoneal removal of the lumbar sympathetic chain has been detailed elsewhere.⁵

Diez⁶ reports a series of cases in which he has removed the lumbar ganglionated chain for the relief of constipation. He affirms that either the right or left chain may be removed, while in certain cases it becomes necessary to remove both chains. We prefer resection of the left ganglionated chain because we feel that the preponderance of nerve fibers to the left side of the colon is derived from the left lumbar chain; and since we are interested not only in the anal sphincter but in sympathetic inhibition of rectal and left bowel function, we believe that removal of the left ganglionated chain has proved more effective on the left colon, though operation on the right may affect the sphincter equally as well as that on the left.

Summarizing the technic which may be followed, one may either remove the superior hypogastric plexus transperitoneally or the left lumbar ganglionated chain extraperitoneally, the latter being our preferential choice. These two methods may be combined, resection of both lumbar chains plus that of the superior hypogastric plexus as advocated by Adson.⁷

RESULTS

It is extremely difficult to assess the evaluation of operations performed for relief of constipation. Each individual has a different yardstick by which he measures the results. Theoretically, a one hundred per cent cure produces a patient with a normal bowel movement per diem without benefit of cathartics. Obviously this places too much burden on one reporting the results, for if this were our criterion we would be producing patients with bowel function better than the normal. For this reason we judge a successful result by a satisfactory daily evacuation with only the occasional necessity for

the use of a cathartic, but without special dietary measures.

By this standard eight of our ten cases have been a success. One case, previously mentioned, was a complete failure. In another case the result was very good for several months only. Recently an abdominal mass was discovered indicating, no doubt, an organic basis. Here the necessity of careful search for abdominal pathology is clearly emphasized. We have considered it unnecessary to report in detail each individual case, as any one serves as a type for all. Therefore, we shall only report the first case in which the operation was performed primarily for relief of constipation.

Mrs. D. N., aged 50 years, had been extremely constipated for many years, notwithstanding careful treatment in several sanatoria. She had had all manner of medical treatment by several competent men, dietary measures and cathartics which she had used in increasingly large doses with very poor results. Associated with the constipation were intermittent attacks of nausea and vomiting and a large amount of gas and consequent distension. Various complaints of pain were concomitant symptoms, all referable to the left abdomen. Being a physician's wife at the age of fifty, with many years' history of this type of complaint, she had been tabulated as a confirmed neurotic. Barium enemas showed the typical picture of a dilated rectum and sigmoid with a spastic bowel above.

Operation was performed March 19, 1932, a left lumbar sympathetic ganglionectomy by the extraperitoneal approach with removal of the first to the fourth lumbar ganglia inclusive. Postoperative convalescence was uneventful, and within a short time after leaving the hospital she had already established a normal function.

Three years have now elapsed, and though diet includes anything desired, she rarely uses a cathartic. This woman has gained in weight and from a chronic invalid has been changed to a healthy individual, with no neurotic tendencies.

As stated, the case is typical of the successful issues of our series. Six of the patients on whom this operation was done were epileptics, severe constipation being a rather common finding in this class. This is because the usual treatment of idiopathic epilepsy combines low fluid intake with a ketogenic diet, and consequently patients who are normally severely constipated become extremely so. The operation in five of these cases has not only successfully relieved the constipation but has been instrumental in a marked improvement in the epileptic seizures in all cases, convulsions being greatly lessened in severity and in number. Concurrent with this amelioration in bowel function the general health of the individual is naturally improved.

One absolute failure recorded we are certain is attributable to an extreme degree of asthenia. Removal of the right sympathetic chain was considered, but it was felt would be as ineffectual as that

5. Flothow, P. G. and Swift, G. W.: Surgery of the Sympathetic Nervous System; Review of 100 Sympathetic Ganglionectomies. *Am. J. Surg.*, 21:345-353, September, 1933.

6. Diez, J.: El Tratamiento de la Constipación por la Resección del Simpático Lumbar. *Prensa med argent.*, 20:767-784, April 5, 1933.

7. Adson, A. W.: Value of Sympathectomy in Treatment of Hirschsprung's Disease, Cord, Bladder and Dysmenorrhea. *Northwest Med.* 33:276-278, August, 1934.

of the left. In our opinion even resection of both lumbar chains and the superior hypogastric would not have caused any difference. Hence, the warning as to selecting this type of patient for operation.

SUMMARY

Ten cases of severe constipation are reported, in which the left lumbar sympathetic ganglionated chain, including the first four lumbar ganglia, have been removed.

In eight of these cases there has been a satisfactory result in the establishment of what we consider to be a comparatively normal bowel habit. One case was a failure due to an extreme degree of asthenia, the other to organic pathology.

The anatomy of the sympathetic innervation of the internal sphincter and the lower colon is reviewed. The sympathetic innervation of these organs travels by way of the lumbar ganglionated chain and the superior hypogastric plexus.

The physiologic basis of the operation is explained. It consists in interruption of the sympathetic fibers, which cause spasticity of the internal sphincter and inhibit the propulsive action of the parasympathetic nerves.

Cases are selected only from that class of subjects in whom constipation is a menace to health, and in whom thorough medical measures have failed.

The surgeon has the choice of two approaches, either removal of the superior hypogastric plexus or of the left lumbar sympathetic chain. We perform the latter operation because of its simplicity and safety.

CONCLUSIONS

In selected cases of severe constipation physiologic release of the bowel may be accomplished by removal of a portion of the sympathetic innervation of the lower bowel, rectum and anus.

This may be accomplished by one of several modes: a left sympathetic ganglionectomy, a bilateral lumbar sympathetic ganglionectomy, a superior hypogastric plexus neurectomy or by a combination of the above.

We prefer left lumbar extraperitoneal sympathetic ganglionectomy, which includes the first lumbar ganglion, because of the excellence of results obtained in eight of ten cases, and because of the fact that the operation has been without mortality or morbidity.

If the proper selection of cases be made, and the severe asthenics and those with an organic basis excluded, by removal of the proper sympathetic pathways severe constipation can be definitely relieved in a great majority of cases.

FRACTURES OF THE VERTEBRAE WITH SPINAL CORD LESIONS

INDICATIONS FOR LAMINECTOMY*

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There are few occasions where the meticulous considerations of neurology and the vigorous decision of industrial care interlock more essentially than in the traumatic emergencies affecting the brain and spinal cord. My subject is at present limited to a very small area of the neurosurgical field, viz., the indications for laminectomy in fractures of the vertebrae with spinal cord lesions.

Let it be said at the outset that recent excellent orthopedic practice now reduces and corrects fractures and fracture-dislocations of the spine when there are no detectable cord lesions. The decision for manipulative reduction has been reached because of the poor functional late results in spines with deformed vertebrae. Eikenbary¹ estimates that, in industrial terms, only 2 per cent of patients had less than 10 per cent disability under older methods.** In the cervical region the reduction is accomplished by the Taylor procedure,³ and in the dorsolumbar region by variously controlled acute hyperextension. The success of the manipulation for reduction depends fundamentally on the use of the essentially intact vertebral articular facets (even though initially displaced) as a fulcrum in the application of hyperextension, and upon the integrity of the strong anterior longitudinal spinous ligament in limiting the degree of hyperextension. A considerable series of excellent results in compression and in comminuted fractures without injury to the cord has been reported.^{4, 5, 6} Such direct orthopedic considerations are mentioned here because they have some bearing upon neurosurgical traumatic cases, and are pertinent to the latter part of this paper.

In a consideration of traumatic myelitis of the

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**Harbaugh and Haggard,² in 97 consecutive cases of fractured dorsolumbar spine within purview of the California I.A.C., found an average of 45 per cent disability (rated after 31 months) for treatment by rest, immobilization, and physical therapy; and 50 per cent disability (rated after 50 months) for treatment by operative stabilization (Albee graft, or Hibbs' fusion).

1. Eikenbary, C. F.: Compression Fracture of the Vertebrae; Suggestions as to Treatment. *J. A. M. A.*, 91: 1694-1697, Dec. 1, 1928.

2. Harbaugh, R. W., and Haggard, R. E.: Fractures of Spine With and Without Operation; Statistical Study. *California & West. Med.*, 32:325-330, May, 1930.

3. Taylor, A. S.: Fracture Dislocation of Cervical Spine. *Ann. Surg.* 90:321-340, Sept., 1929.

4. Dunlop, J. and Parker, C. H.: Treatment of Compressed and Impacted Fractures of Bodies of Vertebrae. *Radiology*, 17:228-234, August, 1931.

5. MacKinnon, A. P.: Fractures and Dislocations of Spine; Review of 50 Consecutive Cases. *Canad. M. A. J.*, 25:35-44, July, 1931.

6. Spiers, H. W.: Fracture Dislocations of Lower Cervical Spine; Report of Cases. *California & West. Med.*, 34: 348-351, May, 1931.

cord, some neurophysiologic considerations must be kept in mind. Where neurilemmal sheaths (Schwann cells) are present, as in peripheral nerves, nerve fibers tend to regenerate in healthy individuals, the rate of regrowth being about 0.7 millimeter per day. Oligodendroglia, according to Hortega, is the analogue of neurilemma within the brain and spinal cord; injured nerve fibers here, however, do not regenerate. Hence, interruption of nerve tracts in the periphery are surgically remediable, with return of function, while those interruptions within the cord or the brain are irremediable. This does not by any means, however, signify that all nerve injuries resulting from vertebral trauma are irremediable. The *cauda equina* is the downward extension of nerve fibers of peripheral type from the lower end of the cord within the vertebral canal, commencing at the level of the superior border of the second lumbar vertebral body; trauma occurring to these inferiorly-lying structures within the vertebral canal is of the same class as those occurring to peripheral nerves, and their mechanical interruption is remediable by nerve suture.

Fortunately not all acute loss of function, however, is due to mechanical interruption of nerve fibers; interruption of physiologic conduction in nervous pathways is possible through agency of a number of causes; the only one which need concern us here is mechanical compression. Such compression may arise from displaced bone (spicules, fractured laminae, unreduced luxations, herniations of pulped vertebral bodies, etc.), impounded blood (extradural hematoma within vertebral canal), edema of traumatized intradural or extradural structures, or any combination of these. Such interruption of conduction is remediable by surgical means, provided the compression has not existed long enough to interfere seriously with the nutrition of the fibers. It is in this class of vertebral and cord trauma (and in *cauda equina* injuries) that surgical interference is indicated. A properly performed laminectomy and removal of pressure, with decompression of the cord (or nerve suture), afford return of function.

DIAGNOSIS

How, then, is the presence of compression of the cord to be determined in such cases? First, by a history of adequate trauma;[†] second, by a neuro-

logic examination demonstrating absence of motor and sensory function below a certain level in the cord; third, by demonstration of fracture-dislocation in anteroposterior and lateral roentgenograms[‡]; and, fourth, by demonstration of subarachnoid block of cerebrospinal fluid by means of the Queckenstedt⁷ test. These criteria are objective and perfectly clear, and the indications for decompressive laminectomy are sharp and definite. A final and still debatable factor must be taken into consideration, the lapsed time since the injury, i. e., duration of compression. Much present neurosurgical practice limits this elapsed time to eighteen hours. Certainly, if acute pressure causing loss of function be continued for much longer than this, prospects for recovery, even with decompression, are dubious. Such limiting indications, however, should not be oversimplified, as is well demonstrated in the case reported herewith.

I need not detail the complicated gear of neurologic examination for determination of the level of the traumatic transverse myelitis, but only recall to your mind that, in the dorsolumbar region, the cord segments lie from two to five vertebrae higher than the correspondingly-numbered vertebral bodies. Such a transverse myelotic level may exist as the result of complete severance, grave mechanical dissolution, perforation, contusion, edema or hematomyelia, but, since such injury is in tissue which does not regenerate after mechanical interruption, the mere existence of a myelitic level is not of itself indication for laminectomy. Surgery can here relieve adequately only compression.

If the cord be compressed enough to abolish function, however, its wrapping membranes are likewise compressed and with them the subarachnoid space containing cerebrospinal fluid. Queckenstedt in 1916 introduced the test for subarachnoid block which bears his name,⁷ but it was Coleman⁸ who, in 1925, first utilized it in traumatic cases to indicate cord compression in a deformed or normal dural canal, and it was Dowman who emphasized the necessity for repeated examination by this pro-

[†]I recall a case in which two companions hung on a patients' neck as he was obstructing their progress up the ladder of a diving tower; although able to walk perfectly, and utterly without nuchal or brachial pain, he subsequently claimed to be unable to move his arms. Five hours later a chiropractic treatment suddenly restored full function. The affection was obviously hysterical, and could readily have been so diagnosed.

[‡]This one of the criteria is not absolutely necessary, since a major enough luxation to produce contusion of the cord may in the few seconds or minutes following the trauma sometimes spontaneously reduce itself, and subsequent roentgenographic examination be negative; this is most likely to happen in the cervical or lumbar regions.

7. Queckenstedt: Zur Diagnose der Rückenmarks Compression. Deut. Ztschr. f. Nervenhe., 55:324, 1916.

8. Coleman, C. C.: Determination of Local Compression as Indication for Laminectomy in Acute Injury of Spinal Cord. J. A. M. A., 85:1106-1110, Oct. 10, 1925.

cedure⁹ (a). Be it said that the principal precaution to observe in proper performance of the Queckenstedt test is that the patient should not strain or cough, since in such circumstances engorgement of spinal veins entering the vertebral canal direct from thorax or abdomen below the site of compression may cause anomalous rise in fluid pressure, and this be erroneously interpreted as the sought-for rise following jugular compression.

TREATMENT

Some obvious surgical preoperative considerations need only be mentioned in passing. The patient should be lifted and handled only face-downward upon a stretched blanket; every effort should be utilized to maintain hyperextension; his bed should have boards underneath the mattress. No operative procedure should even be considered while the patient is in shock. Early roentgen diagnosis is imperative. Operative intervention in the cervical region is less successful than in the dorsolumbar region, and the mortality has been given¹⁰ as 66 per cent. For many neurosurgeons traumatic cervical cord injury is treated essentially expectantly, but the late prognosis is so utterly dismal that, in the concurrence of the patient's relatives, I am inclined to believe that operation is warrantable when other criteria indicate it (b).

Operation should be undertaken under local anesthesia with the patient prone on a cerebellar table, with shoulder and head pieces elevated considerably above normal to afford maximum hyperextension. If the operation be done with the usual neurosurgical subperiosteal technic, blood loss is negligible. Spinous processes and laminae should be removed for two vertebrae above and below the lesion; the resection should extend laterally to just short of the articular facets; extradural hematomas in epidural fat should be pursued to their termination; the lamina of the injured vertebrae should be removed last of all with particular care not to augment pressure upon the cord. The dura should be

opened first below and then above the lesion, without harm to the arachnoid; the opening is then quickly extended over the site of the lesion. With such procedure the danger of disastrous herniation of the edematous cord through a small opening is avoided. Pulsating cerebrospinal fluid should be obtained cephalad. The cord may appear quite normal to inspection and palpation and still be considerably damaged. If its contours and the clinical signs seem to indicate hematomyelia, longitudinal myelotomy and evacuation may be considered. The dura is left open; muscles are closed in multiple layers with silver wire and black silk without drainage, hemostasis being absolute.

After sterile dressings have been applied, a reinforced plaster shell half an inch thick is applied to the patient's body from vertex to midcalf over a well-fitting layer of orthopedic felt; this is suitably trimmed, covered with stockinette, and the following day an anterior shell is similarly made. With the patient lying in either of these shells (both halves being bound together with webbing straps in turning), nursing care and exercise are readily maintained, with absolute immobility of the fracture for the necessary ten to fourteen weeks. Some type of carefully-fitted Taylor brace is then utilized for the succeeding eight to fourteen months.

In the cervical region, the Hanflig collar¹¹ is excellent for maintaining postoperative immobilization, and after the eighth week the adjustable Fitzgerald collar¹² is both comfortable, light and absolute. The late nursing care of a persistent transverse myelitis case, neurologic prognostication, as well as the orthopedic problem of late postural treatment of ankylosed vertebral fractures, are beyond the scope of this paper.

CASE REPORT

T.H.S., a schoolboy of 16, was seen in consultation July 14, 1933, for Dr. A. M. Webster. Twelve hours before he had fallen twenty feet out of a cherry tree; he had struck on a branch in descent but did not remember the posture in which he alighted. His lower dorsal region hurt so much he was unable to move his legs which felt numb. On arrival at the hospital he had been able to move all his extremities, though his legs still felt queer. Arteroposterior and lateral roentgenograms showed compression fracture of the body of the eleventh dorsal vertebra, with about 1.5 cm. of posterior displacement (fig. 1). Orthopedic consultation was obtained. A little, after being placed in dorsal decubitus in a soft bed, his legs became numb and difficult to move.

Physical examination at midnight showed a rational cooperative boy lying on left side; moderate kyphosis, swelling, ecchymosis, and marked tenderness at D₁₁₋₁₂. Some

9. Dowman, C. E.: Indications for Laminectomy in Spinal Injuries. *South. M. J.*, 23:607-611, July, 1930.

a. It is remarkable that so eminent an orthopedic authority as R. Watson Jones (*J. Bone & Joint Surg.*, 16: 30-45, Jan., 1934), should still state that differentiation between transection and compression is impossible at the present time, nearly a decade after the publication of these papers. The error is perpetuated by J. V. Reed in his monograph (*Treatment of Injuries of the Head and Spine*, Pauley & Co., Indianapolis, 1934), but he does recommend laminectomy. In 1823 fiery Sir Astley Cooper wrote: "If you could save one life in ten, one in a hundred, by such an operation, it is your duty to attempt; and he who says it should not be attempted is a blockhead."

10. Gurdjian, E. S.: Indications for Operative Treatment in Acute Traumatic Myelitis due to Fracture of Spine. *J. Michigan M. Soc.*, 29:165-168, March, 1930.

b. Fatalities in cervical cord trauma are usually secondary to the early bronchopneumonia which follows upon paralysis of thoracic musculature; complete lesions at or above the phrenic nuclei (C₄) produce immediate asphyxia.

11. Hanflig, S. S.: New Apparatus for Immobilizing Head and Neck in Fractures of Cervical Spine. *J. Bone & Joint Surg.*, 11:33-35, January, 1929.

12. Le Fevre, L. and Jackson, S.: Fixation and Support of Head in Fractures of Cervical Vertebrae. *J. A. M. A.*, 95:1669-1670, Nov. 29, 1930.

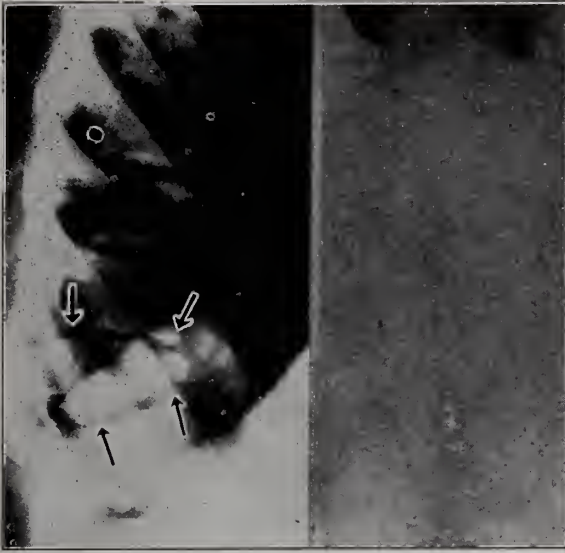
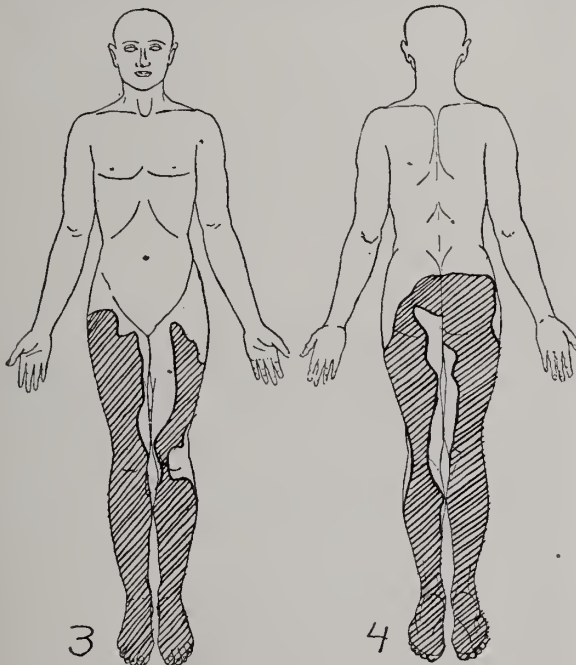


Fig. 1

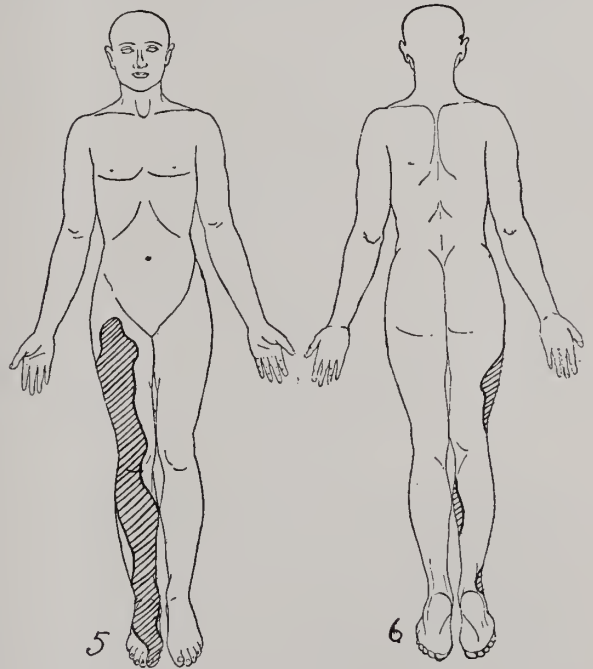
Fig. 2

Fig. 1. Lateral roentgenogram of spine July 13, 1933, showing compression fracture-dislocation of eleventh dorsal vertebra.

Fig. 2. Photograph of operative wound on fourteenth day, showing primary healing; patient is lying in anterior plaster shell.



Figs. 3 and 4 show areas of absence of pain sensation July 17, 1933.



Figs. 5 and 6 show areas of absence of pain sensation Nov. 2.

motion at toes and ankles; very little at knees. Abdominal cutaneous reflexes brisk and equal; cremasterics absent; cavernosus reflex faint; bladder not percussable; tendon reflexes entirely normal. Complete analgesia of right L₁₋₂ dermatomes and left L₁₋₂ dermatomes; entire saddle area normally sensitive. Since there were signs only of root injury, treatment by hyperextension and cast was recommended, with reobservation of neurologic signs after six to eight hours.

His position was inadvertently shifted during the night. During the forenoon he was placed on a hyperextension orthopedic frame, but the canvas sagged slightly. Reexamination thirty hours after the accident showed complete

diplegia (except for faint motion at left ankle) and areflexia in legs; sensation was totally absent in all lumbar dermatomes, and slightly impaired in sacral dermatomes; vibration sense was only moderately depressed, however; rectal sphincter had good tone, but catheterization was necessary.

At forty-two hours, there being no detectable neurologic improvement, lumbar puncture and Queckenstedt were done, demonstrating complete compression of subarachnoid spaces. The fluid was limpid, under markedly diminished pressure, and showed 26 cells, positive Pandy, negative Kolmer, and a total protein of 320 mg. per cent. Operation was done forty-eight hours after the accident, and thirty hours following the diplegia.

OPERATION

Dorsolumbar laminectomy; removal of extradural hematoma; decompression of cord; application of plaster shells to body. After oral pentobarbital, patient was placed in hyperextension on cerebellar table, and under procaine infiltration anesthesia, laminectomy was done through ecchymosed tissues, exposing D₉₋₁₂ and L₁. The spinous processes of D₉₋₁₀₋₁₁ were fractured; the laminar arch of D₁₁ was obliquely fractured on the left and the medial fragment sprung 1.5-2.0 mm. deeper ventrally than the lateral part. When the arches had been removed, the epidural fat underlying D₁₁₋₁₂ and L₁ was found densely infiltrated with firm

clot 2-5 mm. thick over the posterior aspect of the theca; this removed, the dura pulsated normally and was seen to be intact. The dura was opened; the cord appeared pushed slightly upward in the field at the level of D₁₁, but was normal to inspection and palpation, except for engorgement of pial vessels; no discoloration or swelling; below D₁₁ the arachnoid was slightly milky. The dura was left open, and the wound closed without drainage. He was given intravenous glucose, with improvement in blood pressure, and a thick posterior plaster shell was molded to him before he was removed in it from the table.

The wound healed per primam (fig. 2), and his convalescence was smooth. Early distension was relieved by gastric

lavage and Levine tube; catheterization was required for eight days, but automatic bladder established itself, and voluntary control returned in six weeks; rectal continence returned on the twelfth day. On the fourteenth day motion began in toes and ankles, especially on the left; on the twenty-sixth day some voluntary motion appeared in thighs (automatic mild flexion spasms had been bothersome for ten to fourteen days previously). Sensory defects receded more slowly (figs. 3, 4, 5, 6). Roentgenograms showed that the compression had opened out by about 12 to 14 mm. and posterior displacement had diminished from 15 mm. to 11 mm. Early evidence of bridging callus was found during the eighth week; analgesia was now receding rapidly.

In the fourteenth week he was fitted with a Taylor brace (fig. 7) and began to sit upright; during the twentieth week he began to walk with a cane. At the twenty-sixth week he was walking about the house; his feet chilled easily; his left leg became "lost" in bed occasionally, and, though vibration sense was unimpaired, muscle sense was markedly defective in left toes, ankle, and knee. The analgesic area (figs. 5, 6) remained substantially unchanged as compared with the twelfth week. Urinary urgency was occasionally present; erection and ejaculation were intact; rectal sphincter normal. Knee and ankle jerks were hyperactive, Gordon and Oppenheim negative, Rossilimo positive on the right, and Babinski negative from inner sides of soles, but positive from outer sides. Cremasteric reflexes normal, but lower abdominals absent. At the thirty-eighth week he was walking without a cane (fig. 8), had commenced overhead ladder exercises. Roentgenograms showed no essential alteration of spinal deformity (fig. 9), and a silhouette pattern of spine was identical with that of six months previously. All sensory defects showed further slight improvement, but the area of analgesia remained substantially unaltered.

SUMMARY

A 16-year-old boy with compression fracture-dislocation of a lower dorsal vertebra showed impairment of root function at twelve hours, and of cord compression (with diplegia) at forty-eight hours. At operation the dislocation was confirmed and partially corrected, a fractured depressed laminar arch demonstrated and removed, and a compressing hematoma in epidural fat extirpated. Cord compression signs receded from the first to fourth weeks, root signs from the third to ninth week, and a residual syndrome is present at the thirty-eighth week (incomplete left Brown-Sequard complex, with intact anogenital area). The once diplegic patient is now walking easily without assistance, and playing in his college orchestra.

CONCLUSIONS

1. Indications for laminectomy in fractures of vertebrae with spinal cord lesions are objective and



Fig. 7

Fig. 7. Photograph showing comfortably fitting Taylor brace which has maintained correction since the 14th week.

Fig. 8

Fig. 8. Patient at 38th week, walking without cane; able to walk with eyes closed, but unsteady then; gait slightly stamping.

Fig. 9

Fig. 9. Lateral roentgenogram of spine May 3, 1934, showing maintenance of improved position of partially reduced fracture-dislocation.

precise. Stated in order of ascending importance, they are: an adequate history, a transverse myelitic level, positive roentgenograms, subarachnoid block, and an elapsed time of probably not more than twenty-four to thirty-six hours.

2. Rationale of treatment is discussed and a case presented.

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DISCUSSION

A. M. Webster, Portland: We can well afford to forget the technical wording of Dr. McLean's paper, if we can retain in mind its essence. The injuries that make laminectomy the operation of choice are so extremely and permanently disabling that any procedure that will give a fair prospect of restoring function is imperatively indicated. Even the most unskilled general practitioner should be able to decide quickly whether or not a neurosurgeon is needed, and he should keep in mind that, if laminectomy is to be successful in restoring function, it must be done promptly. Oftentimes the most valuable service a general practitioner can perform is to secure promptly, as a consultant, the right kind of specialist. A broken back, with resulting deformity and loss of use of the lower limbs, is apparent to every chance observer. The case Dr. McLean has reported is that of a fine, bright, lovable boy, the son of some good friends of mine, and I would have felt like hiding away in some inaccessible place, if I had not sought promptly every possible aid in restoring the boy to normal again. That he has been restored is commendable.

W. W. Allen, Mill City: This case shows the general practitioner what can be done. However, as I review the spinal injuries I have seen during the past quarter of a century or when I read the literature on the subject, I am somewhat uncertain. In industrial surgery in the woods I have never seen a case where laminectomy would be of use. We handle the patient on a blanket, as suggested, but we need pins to bring it about him to deliver the body to the family; that is the usual outcome in this serious injury. From the standpoint of one on the actual firing line, it is a question of how much to do. There is a great deal of question of the value of laminectomy in the industrial world. The patients may live, and may enjoy life, but they cannot be returned to work, even with our best care. Personally I am an advocate of returning all broken bones to as near a normal position as possible at the earliest time possible. Many times they repair without more than traction in good position, if followed carefully; this, indeed, accomplishes about all I have been able to do.

J. M. Simpkin, Marshfield: There are one or two additional points to consider. One concerns transportation of

these spinal injuries. In industrial work we tell our nurses to transport these cases face downward. Eighty per cent of vertebral fractures occur between the tenth dorsal and first lumbar vertebrae, and hyperextension is certainly indicated even in the early transportation. On the roentgen table they should be turned with the draw-sheet. Another point which I should like to stress is that laminectomy is not the only procedure of choice in these cases. We all know the value of reduction. Davis of Chicago, who has certainly had wide experience, says these cases should be put to sleep and the vertebral canal then realigned; then, if indications remain, laminectomy is indicated. Inasmuch as cervical vertebral fracture with cord compression is almost uniformly fatal in spite of laminectomy, no interference is indicated, and a Minerva jacket may be recommended. In the dorsal region, if laminectomy is to be done, it should be done soon, but it practically never does any good. In the lumbar region, with cord injury, it is always indicated 100 per cent because we are dealing with nerves of peripheral type that have reparative power.

Otis F. Akin, Portland: There seems to be a wide divergence of opinion between orthopedists and neurosurgeons on this question, and there is no good reason for it. The fact that a patient gets well after a procedure does not indicate that that particular treatment was necessary or efficacious. I feel, in common with many orthopedic men, that the first thing to do in these lesions is to correct the deformity; with paraplegia it must be done at once, but with others it can wait a little longer. The last speaker has referred to face-down transportation; I agree thoroughly. Consider the advice of Wilson, Associate Professor of Surgery at University of Toronto, who says in his recent book on fractures that laminectomy is useless and often harmful. R. Watson Jones says in his classic article in the "Journal of Bone & Joint Surgery," January, 1934, that laminectomy is useless but that the canal should be restored to normal as soon as possible. This restoration is accomplished by hyperextension, putting the patient face downward suspended between two tables, with the shoulders on a box on the higher table. We have employed the Abbott scoliosis table at times, but I believe that simple hyperextension is often enough. At least we should reduce the fracture. I am rather discouraged about the results of laminectomy and from my experience I believe I am through with it unless there are better results shown than I have observed.

Dr. McLean (closing): I am glad we have had this live discussion. I tried to bring out in the early part of my paper that reduction of the fracture insofar as possible is always essential; and that during the laminectomy the headrest and shoulder pieces of the cerebellar table are placed abnormally high, in order to afford maximum hyperextension. In this case orthopedic consultation had been obtained early, and the patient was on a hyperextension frame, at a good angle, for at least ten hours without benefit; in fact, his paraplegia advanced during this time. The major part of this boy's spinal cord compression was due to an extradural hematoma. Neither complete reduction, nor any other procedure than the one done, would have altered the inevitable permanent paralysis that was impending. The indications for laminectomy were there, the operation was done, and the boy is walking today. I do not advocate the use of laminectomy in every case presenting itself; it is not a routine procedure and should not be used indiscriminately. I have tried to show that the indications for decompressive laminectomy are sharp and precise, that they have good physiologic foundation, and that in this instance, as in others, they have justified themselves. As for the counsel of delay, I can only reiterate that if the Queckenstadt test demonstrates pressure, and if this pressure be too long continued, even decompressive laminectomy can do no good; the procedure must be prompt.

LOW BACK PAIN

DIFFERENTIAL DIAGNOSIS AND TREATMENT*

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Low back pain is a problem with which every physician and surgeon must deal. This pain is the price which man has to pay for his departure from the position of the quadruped. The baby when it is born has its lumbar spine convex dorsally, and it is only after a period of months that the lumbar curve as we know it makes its appearance. This tilts the sacrum forward, and makes an acute angle

between the lumbar spine and the sacrum. Mechanically the lower back is poorly constructed.

An appreciation of the mechanics of the lower spine will not be amiss. The bodies of the vertebrae are set one upon the other, each separated from its neighbor by an intervertebral disk with its nucleus pulposus. This does not form a true joint. There is no articular cartilage. There is no synovial membrane. The true joint formation lies between the articular processes, the facets of which have a covering of articular cartilage, and the joints are lined by synovial membrane. These lie in different planes in the main sagittal, but between the fifth lumbar vertebra and the body of the sacrum the articulation lies in the coronal plane. Were it not for this last articulation lying as it does almost transversely, the tendency for the spinal column to slip forward would be much greater than it is.

Following the publication in 1905 by Goldthwait and Osgood of their studies on the sacroiliac joint, there was a general acceptance that lesions of this joint were chiefly responsible for low back pains. Danforth and Wilson¹ showed in 1925 the comparative size of the intervertebral foramina and the relative size of the nerve roots which issued through them. The foramen between the fifth lumbar and the sacrum is smallest, and the nerve root issuing here is largest. They taught us that nerve involvement was present in more than half of the cases, and attributed the impingement of the intervertebral foramen on the nerve roots as being responsible. They also showed that the fourth and fifth lumbar, and the first and second sacral, were the nerves most frequently involved, and of these by far the most constantly was the fifth lumbar.

As I have said previously, mechanically the lower back is not efficient. There is not sufficient margin of safety to take care of unusual stress and strain.

Putti² believed that arthritis with involvement of the intervertebral foramina was chiefly responsible for sciatic pain, and that the treatment depended upon the treatment of arthritis. Williams³ has ascribed the cause of sciatic pain to a diminution of the lumbosacral space with its accompanying increase in acute angulation.

Ghormley⁴ attributes an arthritis of the articular

* Read before the Fifty-fifth Annual Meeting of Washington State Medical Association, Spokane, Wash., September 11-12, 1934.

1. Danforth, M. S. and Wilson, P. D.: Anatomy of Lumbosacral Region in relation to Sciatic Pain. *J. Bone & Joint Surg.*, 7:109-160, Jan., 1925.

2. Putti, V.: New Conceptions in Pathogenesis of Sciatic Pain. *Lancet* 2:53-60, July 9, 1927.

3. Williams, P. C.: Reduced Lumbosacral Joint Space; Its Relation to Sciatic Irritation. *J. A. M. A.*, 99:1677-1682, Nov. 12, 1932.

4. Ghormley, R. K. and Kirklin, B. R.: Oblique View for Demonstration of Articular Facets in Lumbosacral Backache and Sciatic Pain. *Am. J. Roentgenol.*, 31:173-176, Feb., 1934.

facets lying between the fifth lumbar and the sacrum as being responsible in many cases of low back pain. He has shown how oblique radiographs will frequently demonstrate a diminution of this joint space, and irregularity of its edges.

Freiberg and Vinke⁵ have stressed the importance of the piriformis muscle, which takes its origin from the anterior surface of the sacrum, and is inserted in the tuberosity of the femur, and through which muscle portions of the sciatic nerve and the neurovascular plexus pass. They feel that the relief by manipulative procedures of sciatic pain may have its explanation in the release of adhesions between the piriformis muscle and the nerve sheath, rather than from stretching of the nerve trunk.

Ott⁶ showed that repeated epidural injections were of distinct value in relieving sciatic pain. Labat and Greene⁷ suggested in addition dilute alcoholic injections of the involved nerve trunks. I am personally afraid of these injections. The term "sciatica" has been applied to many of these low back pains because of the reference of pain down the course of this great nerve.

Magnuson⁸ has pointed out that the mental attitude of the examiner is a matter of great importance. I agree with him, and feel that the mental attitude of the enthusiast has to a great extent been responsible for his opinion. If one has a fixed belief that the sacroiliac joint, or the lumbosacral joint, or the articular facets between the fifth lumbar and the sacrum, or the intervertebral foramina, or the nerve roots in their relations to these, are chiefly responsible, it is comparatively easy to make the history and physical findings fit in with the predetermined cause.

I know of no test which is pathognomonic. Lasague sign, or straight leg lifting, was supposed by some to have caused through a pull upon the tense hamstring muscles a stress upon the sacroiliac joint; by others to cause a pull upon the sciatic nerve; and more recently by others upon the piriformis muscle. This is to give but one example of how a single sign may be interpreted. This might be multiplied indefinitely. I bear no brief for any exclusive theory. I feel that in many of these cases a combination of factors is responsible.

It is most natural for any individual to try to

attribute any pain that he may have to some cause that he may readily understand, as for example the patient with acute appendicitis attempts to attribute it to a chicken salad or a crab Louie; the woman with the cancer of the breast to a bump which she received there some months previously. Consequently, an attempt is almost always made to explain low back pain by some physical violence. A man has pain in his back; hence, according to his reasoning, it must have been due to a strain, or heavy lifting, and this having revolved itself in his mind, the idea soon becomes a fixed one with him. Where there is coverage by accident or industrial insurance, subconsciously or otherwise, this physical explanation is even more readily reached.

A combination of faulty posture with its attendant undue muscle strain, and as called by Hauser,⁹ "functional insufficiency"; arthritis whether involving the articular facets, or impinging on the intervertebral spaces; neuritis involving the nerve roots themselves; or strains caused by physical violence, are probably all very frequently responsible. In my opinion the explanation rarely lies in any one faulty factor. It lies in a combination of these.

How are we best able to relieve the patient, whose symptoms are due to some combination of these factors? While my personal experience in the treatment of low back pain may not have been greater than that of the average physician, I have been obliged to review a very large number of cases that have been treated by others, and, I feel sure, treated according to all theories that have ever been propounded. History, physical examination and roentgen findings should give one a fairly definite idea of the involved factors, and of the predominating factor that is responsible for symptoms. Treatment must be directed toward relieving the factors in the order of their causative importance.

When examining the back, the patient should be stripped. His posture should be noted; whether it is correct or faulty; whether there is an obliteration of the lumbar curve; and whether there are deformities. The presence of list should be observed; also whether there is an apparent shortening of one leg, and should this be present it is important to determine by measurement whether the shortening is real. Muscle atrophy should be noticed. A marked atrophy implies considerable time duration of existing symptoms. The tension of the muscles should be carefully observed both when standing at ease and in all of the following movements.

5. Freiberg, A. H. and Vinke, T. H.: Sciatica and Sacroiliac Joint. *J. Bone & Joint Surg.*, 16:126-136, Jan., 1934.

6. Ott, W. O.: Results of Treatment in Sciatica. *Ann. Surg.* 76:272-276, Aug., 1922.

7. Labat, G. and Greene, M. B.: Contribution to Modern Method of Diagnosis and Treatment of so-called Sciatic Neuralgias; Case Reports. *Am. J. Surg.*, 11:435-451, March, 1931.

8. Magnuson, P. B.: Backache from Industrial Standpoint. *J. Bone & Joint Surg.*, 14:165-169, Jan., 1932.

9. Hauser, E. D. W.: Low Back Pain; New Explanation of Pathogenesis and Treatment. *Surg., Gynec. & Obst.*, 57:380-383, Sept., 1933.

When the patient bends forward one should note whether the bending actually takes place in the spine or at the hips, and not only record this but the extent of the bending. Forward bending should not only be carried out in the straight position, but in both oblique positions. One should observe how the patient comes up from the various positions of forward bending, whether there is hesitation at any constant point, whether he comes up freely, or whether he climbs upon his legs with his hands. Lateral bending should be carried out as well as backward bending. Twisting the trunk upon the pelvis should be noticed. Having the patient step up into a chair, first with one leg and then with the other, often gives valuable information.

The patient should be examined lying on the table, and the degree of flexion of the thigh upon the trunk, with the knee bent, and with the leg extended, should be noted. The presence or absence of muscle spasm in all of these procedures should be observed. Compression of the pelvis, and strain placed upon the pelvis by various manipulations, should be carried out, and the results recorded. Local soreness to palpation or percussion, and tenderness along the course of nerve trunks, should be sought for. Where there is hyperesthesia, one must see whether it corresponds to a reasonable nerve distribution.

We have been rather impressed with the fact that motor involvement is more common than is ordinarily realized. Of course, the sensory nerve involvement has been the one commonly noted. The motor involvement is frequently observed in the absence of the knee jerks, in the marked atrophy, and in some cases by partial paralysis as in foot drop.

Schambouroff has pointed out that the stretching of the nerve roots within the canal may be accomplished by sharply flexing the head upon the trunk, when the patient is in a sitting posture with the legs extended. This frequently reproduces the pain in the lower back, and in some cases even brings it out clear down the leg. No additional strain has been placed on the sacroiliac, lumbosacral joints or pyriformis muscle in this procedure. This test has in my experience been of considerable value in indicating the predominating nerve involvement, and suggesting to me that considerable relief might well be expected from epidural injection in cases where this sign is positive.

Rest is to my mind without doubt the most important single factor in treatment. Where the symp-

toms are acute enough, or have existed over a sufficient period of time to warrant it, this rest should be bed rest plus local rest of the affected part. The latter can be accomplished by Buck's extension, and the application of moderate weight, from five to ten pounds, to either one or both lower extremities. The acute pain will generally be relieved in from a few days to a week. During this initial period of rest, the application of heat to the lower back gives definite relief.

The restoration of the normal lumbar curve may be accomplished by gradually increasing the size of pads beneath the back. If the symptoms and signs of nerve involvement have been predominant, epidural injections of novocaine and salt solution are definitely indicated. If necessary, the epidural injections may be repeated several times. The back may be advantageously supported by a belt, and the individual should not resume activity too suddenly, but should have gradually decreasing rest periods until normal muscle balance has been established. Correcting faulty posture is well worthwhile.

The removal of foci of infection has in my experience been very disappointing in relieving pain in any single attack. It may be of distinct value in preventing subsequent attacks.

Sacroiliac fusion if done for an arthritis of the lumbosacral joints or an impingement of the intervertebral foramina upon the nerve roots, will not give relief. Fusion operations are for some reason definitely less satisfactory in compensation cases than they are in others.

My plea is one of conservatism. I feel that, while occasionally manipulation under anesthesia and the application of casts will be necessary, there are comparatively few cases where fusion must be resorted to, and then only after repeated trials at more conservative treatment and after most careful consideration, and the selection of the involved joints.

VARICOSE VEINS

OBSERVATIONS ON TREATMENT*

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Fads and fancies in the recognized methods of treatment of varicose veins have run the gamut of time so that at the present we have certain fundamental principles of standardized routine. Some of the more common procedures may prove inadequate

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in the management of certain varicosities. It is unfortunate that instructions from a pharmacal house together with syringe, needle and hypertonic solution are often regarded as the sole prerequisite for this work.¹ It is the purpose of this paper to review the recent literature and discuss some experiences with a series of over 2000 injections in the Varicose Vein Clinic conducted at the King County Hospital, Seattle.

GENERAL PROCEDURE

All cases may be arbitrarily classified into one or more of the following groups: (1) simple, (2) extensive and (3) complicated varicosities.

1. Simple varicosities include those disfiguring spider-like clusters which usually appear on the thigh. Many of these are entirely obliterated by careful injection with sodium morrhuate, using a very fine hypodermic needle.

2. The extensive type is found in those patients who have unilateral or bilateral varicosities with valvular insufficiencies within most of the long and short saphenous systems of veins. This disabling condition was observed strikingly associated in patients with a history of previous injury, such as fractures or burns. Although pregnancy was another etiologic factor, the majority of patients stated that the dilatations had long existed, in most instances as far back as they could remember, and that they had been required to walk or stand for hours at a time in the daily course of industry.

3. The complicated types are produced in either the extremely young or the aged, patients with cardiovascular-renal disease, the syphilitic, as a complication of pregnancy, or in conjunction with leg ulcers. Our oldest patient was 89 years of age, the youngest six years old. Distribution of sex was practically equal, this ratio having been maintained for the past three years.

SELECTION FOR TREATMENT

A general physical examination is most essential for all patients with varicose veins.² Individuals with cardiovascular-renal disease or with syphilis are subjected to the injection treatment, provided the systemic condition is under control. Pulmonary tuberculosis, goiter and resting infection in the legs are positive findings which contraindicate the injection treatment. Pelvic pathology can be treated surgically after the injection of associated varicosities in the extremities. Pregnancy is no contraindi-

cation to the injection treatment until the sixth month, but it is best to use five per cent sodium morrhuate solution. Quinine has been used with no resulting abortion. Postpartum phlebitis is definitely obviated by antepartum partial if not complete injection of the varicosities.

A case of ulcer with or without phlebitis deserves careful study. Thrombophlebitis definitely contraindicates an injection until the patient has been symptom-free at least six months. A phlebotic ulcer demands local therapy with no intravenous injection. Broth has proved a great assistant by both local application and subcutaneous injection around these infected areas. Malignancy must also be considered in long standing ulcers, although only nineteen cases of epithelioma were found by Tenopyr and Silverman³ in surveying the records of 1000 cases of leg ulcer in Kings County Hospital, New York. As only four epitheliomas were found at the site of the chronic varicose ulcers, it is evident that irritation of this nature does not often result in malignant degeneration.

Before instituting treatment certain general contraindications must be ruled out, namely, (1) systemic diseases, which include hyperthyroidism, tuberculosis, and uncontrolled or advanced cardiovascular-renal disease. Acute upper respiratory infection should cause a postponement of injection; (2) mechanical obstruction, which means insufficient venous return, and is usually evidenced by edema; (3) latent infection, always a dangerous feature. Jacques⁴ has demonstrated bacterial growth from excised veins taken during ligation and this further emphasizes the prevalence of infection in the varicose veins. Fatal embolism is a most common sequela following injection in the presence of infection, which may follow a simple aseptic puncture of a vein and may light up infection in the opposite extremity.

Another preliminary step in treatment is the Trendelenburg test.⁵ A Trendelenburg positive is found in that condition where, on account of valvular defects, the flow of blood is from above downward in the long saphenous vein from the saphenofemoral opening or from some of the communicating branches from above the knee. A Trendelenburg negative may be found where the valves of

1. Faxon, H. H.: End Results in the Injection Treatment of Varicose Veins. *New England J. Med.*, 208:357-361, Feb. 16, 1933.

2. de Takats, G.: Causes of Failure in the Treatment of Varicose Veins. *J. A. M. A.*, 96:1111-1114, April 4, 1931.

3. Tenopyr, J. and Silverman, I.: Relation of Chronic Varicose Ulcer to Epithelioma; Based on Records of over 1000 Chronic Leg Ulcers. *Ann. Surg.*, 95:754-758, May, 1932.

4. Jacques, L.: Varico-Phlebitis and the Injection Treatment. *Ann. Surg.*, 95:746-753, May, 1932.

5. Hawkes, S. Z.: Importance of Trendelenburg Tests in Treatment of Varicose Veins. *Med. J. & Rec.*, 139:399-401, April 18, 1934.

the communicating veins have failed and a reverse flow is present from within outward. The third, a double Trendelenburg, might easily be conceived as possible in the one patient. Should there be no valvular defects but merely sacculated and dilated veins, he calls this condition a Trendelenburg nil. According to Hawkes and repeated in our experience, these tests not only demonstrate the necessity and sites for ligation but also aid the physician in giving the patient an accurate prognosis as to the length, ultimate success and permanency of the injection treatment.

FORMS OF TREATMENT

Injection. In initiating this work we used the dextrose and chloride solutions, but quinine and urethane or the five per cent solution of sodium morrhuate are now the solutions of choice for the majority of injections. The dextrose and chloride solutions caused severe cramps; moreover, the large amount of solution required resulted in leakage with the formation of sloughs. Quinine reaction is annoying, but if no more than 4 to 6 cc. of the solution are used at one sitting after the preliminary 1 cc. test dose, the vertigo is transitory. The quinine and urethane solutions have proved most successful. Although sodium morrhuate solution is employed in a larger amount, it does not produce sloughs on injection into the tissues. However, a local pruritis and general allergic reactions following its use have been reported by Zimmerman.⁶

Technic. A short bevel 24 to 25 gauge needle is employed for the intravenous injection. It is important to empty the vein of blood by stripping, or by withdrawing the blood from a segment of a vein isolated between tourniquets.⁷ As sloughs have occurred more often after the use of tourniquets, we have discarded this mode. To produce a satisfactory result the solution must come in contact with the vein wall in the original concentration and not diluted by blood. Pressure pads must then be applied, held in place by crossed strips of adhesive plaster. An Ace bandage or other support is necessary to prevent canalization of the organized thrombi, as well as to prevent the thrombi from appearing as unsightly lumps. The bandages must be worn continually during treatment and generally for several weeks following. It is not wise to inject the veins of a patient who is bedridden from some

other cause. McPheeters⁸ emphasizes that a patient should always be kept ambulatory during treatment because the circulation in the leg is markedly increased by the systolic and diastolic action of the calf muscles when walking. There is a backward pressure and reverse flow in every case of fully developed varicose veins. This backward pressure tends to force the thrombus more firmly down into the varicose vein and tends to prevent the formation of an embolus. In former years surgeons would insist that their patients should have bed rest for ten days or more following treatment but this is contrary to the present opinion.

Ligation. This is an office procedure, recommended by de Takats⁹ as requisite for certain selected patients, in whom the long saphenous vein is dilated up to the saphenofemoral opening. Local "blow-outs" or incompetent communicating veins are occasional sites for ligation. Patent, deep circulation is a necessary prerequisite. With one per cent novocaine and the leg horizontal we expose the vein through a small incision as close as possible to the fossa ovalis. Designating the position of the vein when the patient is upright obviates much difficulty. The vein is doubly ligated and divided between the ligatures. The saphenous vein should be ligated in one leg at a time.

ULCERS

Simple ulcers are treated by the injection of the "feeder" vein when it can be located. Local application of ointment and quite frequently the pressure from small strips of adhesive plaster around and across the ulcer area aids the healing process. When associated with an edematous condition of the leg, the combination of injection plus a McPheeters¹¹ "rubber heart" and a tight Unna's boot is indicated. The vein is injected, and the ulcer cleansed with benzene. McPheeters varicose vein ointment may then be applied and a piece of rubber sponge cut to overlap the ulcer area. This sponge and dressing are held in place by a bandage so applied that pressure is exerted over the ulcer. The ointment is compounded according to the following formula:

Camphor	4.5 Grams
Phenol	4.5 Grams
Zinc oxide.....	150.0 Grams
Calomel	180.0 Grams

8. McPheeters, H. O.: "Do's and Don't's" of Injection Treatment of Varicose Veins. *Minnesota Med.*, 17:33-38, January, 1934.

9. de Takats, G.: Ambulatory Ligation of Saphenous Vein. *J. A. M. A.*, 94:1194-1197, April 19, 1930.

6. Zimmerman, L. M.: Allergic-like Reactions from Sodium Morrhuate in Obliteration of Varicose Veins. *J. A. M. A.*, 102:1216-1217, April 14, 1934.

7. de Takats, G. and Quint, H.: Injection Treatment of Varicose Veins. *Surg. Gynec. & Obst.* 50:545-561, March, 1930.

11. McPheeters, H. O. and Rice, C. O.: Varicose Veins; Complications, Direct and Associated, following Injection of Treatment; Review of Literature. *J. A. M. A.*, 91: 1090-1094, Oct. 13, 1928.

Liq. petrol.....	80.0 Grams
Anhyd. lanum.....	210.0 Grams
White wax.....	110.0 Grams
Petrolatum	260.0 Grams

The boot is then fashioned by alternate layers of melted Unna's paste and gauze bandage, applied around the leg up to the knee. Four or five layers of gauze are required, depending upon the desired thickness. The best formula for Unna's paste is as follows:

Silver leaf gelatine.....	45.0 Grams
Zinc oxide.....	20.0 Grams
Boric acid powder.....	30.0 Grams
Glycerine.....	250.0 Grams
Distilled water.....	175.0 Grams
Liq. phenol.....	8.0 Grams

We permit each boot to remain in place about a week, provided it does not cause too much discomfort or become too loose. Patients were frequently relieved to such a degree that they begged to have another boot subsequently applied.

Another form of treatment for the infected ulcer is the subcutaneous injection of nutrient broth as recommended by the late Dr. O. J. West of Seattle. Speidel¹² has employed the broth in acute infections encountered in his surgical practice and Tashian has shown excellent results by injecting broth in the treatment of pruritis ani. Local application of broth-saturated dressings is an additional use of broth in the cleaning of local infections and the promotion of healing. Ordinary nutrient broth is generally employed but Tashian¹³ has obtained better results by omitting dextrose according to the following formula:

Beef extract.....	3 Grams
Peptone	10 Grams
Sodium chloride	8 Grams
Distilled water	q.s. 1000 cc.

Bring to pH of about 7.3 which is accomplished by adding almost 9 cc. of NaOH, which is shown by a neutral reaction to litmus.

The offending vein is occasionally too deep to locate and inject, in which case the ulcer is excised, the vein injected and ligated and the raw surface immediately covered by Thiersch or Riverdin skin grafts.

COMPLICATIONS

General. Fatal pulmonary embolism has never occurred in any of our cases. McPheeters reports four such deaths among a total of 53,000 patients; Silverman reports nineteen deaths from pulmonary embolism in a series of 100,000 cases. A transient dizziness, sometimes fainting, has at times occurred, especially when quinine solutions were employed, but with no untoward results.

Local. Perivenitis is a frequent painful and oft

times serious complication. Until the condition has subsided by the use of heat and elevation of the extremity, further injections are contraindicated. Sloughs or injection ulcers are annoying complications which result from leakage of the solution into the tissues. Dextrose, sodium chloride and quinine solutions are the common offenders in this respect. Sodium morrhuate can be injected into the tissues without the formation of a slough. We found that the thin walled veins of the popliteal area and also in the fat thighs were the most difficult to inject, requiring firm bandage to prevent leakage of the solution into the tissues. Veins that occur over either malleolus are best avoided as they become most painful when injected. Blonde individuals seem to react more severely to the injection and have a painful venitis, but the treatment of each patient is an individual problem and the surgeon should strive to prevent complications, rather than to treat them afterwards.

CONCLUSIONS

1. Varicose veins are the result of a progressive degenerative process within the vein and it is not possible to prognosticate when treatment is complete. McPheeters draws an analogy to teeth; a subject may have all dental work properly done, yet decay continues and carious teeth may again be present in about two years. It is evident that patients must return for observation at six-month intervals, at which periods a "mopping-up" injection process may be required to obliterate all the varicosities.

2. Quinine and urethane or sodium morrhuate solutions are the therapeutics of choice in the management of varicose veins, but neither solution as an injection agent is entirely free from objections.

3. The ligation of the long saphenous vein at the saphenofemoral opening is of great value as an auxiliary to the injection treatment, when the varix is in this region.

4. Varicose ulcers respond well to injection plus a rubber sponge dressing and a tightly applied Unna's boot.

5. Nutrient broth applied directly to infected ulcers expedites the healing process. Subcutaneous injection of broth will aid materially in clearing up infection surrounding the ulcer.

6. General complications beyond vertigo are unusual, but local sequelae, such as perivenitis and injection ulcers, are rather common and annoying, although seldom serious. Bedridden patients should not be injected. Always keep the patient ambulatory.

12. Speidel, W. C.: Nutrient Broth, Protein Treatment of Wounds. *Northwest Med.*, 33:99-101, March, 1934.

13. Tashian, S. H.: Pruritis Ani; Mobilization of Reticuloendothelial Cells as Aid to Cure. *Northwest Med.*, 32: 106-111, March, 1933.

AN OUTBREAK OF DYSENTERY CAUSED BY THE SONNE TYPE BACILLUS

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BACTERIOLOGIC AND SEROLOGIC STUDY

To the clinician interested mainly in treatment, the classification of the dysentery bacilli is of little importance, since, with the exception of the none too effective specific measures, the treatment has no relation to the causative agent. To the epidemiologist, however, in tracing sources of infection, and to the bacteriologist who is called upon to determine whether or not a given case is of specific infectious origin, recognition of definite types of organisms is of the utmost importance. Though a review of the many descriptions of organisms causatively associated with dysentery cases and epidemics in the last forty years gives a first impression that these organisms belong to many species, purely practical considerations lead to the acceptance of but three types of dysentery bacilli which, when found in the stools of diarrheic cases, may be accepted without further proof as the causative agents of the infections. Though Morgan's bacillus, bacterium dispar and many other organisms have been found in some cases to give rise to dysentery-like symptoms, these organisms have also been found frequently in normal feces of both man and animals. Their presence in the stools of diarrheic cases cannot, therefore, be accepted as of etiologic significance without supportive evidence from epidemiologic or other data.

Type	Glucose	Mannitol	Lactose	Agglutination
Shiga	Acid	—	—	Little cross agglutination with other types except in lowest dilutions.
Flexner	Acid	Acid	—	Some agglutination with Sonne serums in low dilutions.
Sonne	Acid	Acid	Acid (late)	Agglutination with Flexner serums in low dilutions only.

TABLE 2, Chief Differential Characteristics of the three Types of Dysentery Bacilli.

The three types of specific dysentery bacilli with their principal differential characteristics are given in table 2. All of these organisms are Gram-negative, nonmotile rods which ferment glucose and various other sugars and higher alcohols without gas formation. All give on Endo's medium colorless transparent colonies which in any routine stool

examination would be picked off and inoculated to Russell's double sugar agar. On this medium they give the typical acid reaction in the butt with an unchanged slope. Their differentiation into types is usually made, with the Russell's cultures as a starting point, on the basis of the characters indicated in table 2. Within all three types there are some strain variations in minor characteristics. The Schmitz bacillus³⁹ may be included in the Shiga type because of its fermentation of mannite, though it differs from the type organism in forming indol from tryptophane and in being agglutinatively distinct.

The Sonne organism, with which we are concerned in this paper, resembles the Flexner bacillus in fermenting mannitol but differs from that type in invariably forming acid in lactose media after several days incubation. It is also agglutinatively distinct from the other dysentery bacilli. The late fermentation of lactose by the Sonne organism is due to the fact that in contact with that sugar a variant always appears which ferments the sugar readily.

Due to the generally less severe character of the symptoms produced by the Flexner and Sonne types, these organisms have come to be called paradysentery bacilli as distinguished from the true dysentery bacilli of the Shiga type. This concept has been preserved by Bergey⁴⁰ in his specific nomenclature of the organisms.

The seven strains of the Sonne bacillus which we isolated in this outbreak proved to be identical in all morphologic and cultural features and to differ from each other only in insignificant degree in antigenic characters. The organism may be described as a short Gram-negative, nonmotile, nonspore-forming rod which is indistinguishable morphologically and in staining characteristics from the other dysentery bacilli. It grows readily on ordinary meat extract culture media, giving a growth in twenty-four hours that would be described as abundant. The agar colony is slightly larger and more opaque than those of the other paradysentery bacilli, being from 2 to 4 mm. in diameter after twenty-four hours incubation with very little, if any, increase in diameter taking place on longer incubation.

The dissociative phenomenon reported by various authors and studied in some detail by Thjotta⁴ was

39. Schmitz, K. E. F.: Ein neuer Typus aus der Gruppe der Ruhrbazillen als Erreger einer grosseren Epidemie. Z. Hyg., 84:449-515, 1918.

40. Bergey, D. H.: Manual of Determinative Bacteriology, Williams and Wilkins, Baltimore, 1930.

41. Neisser, M.: Ein Fall von Mutation nach de Vries bei Bakterien und Andere Demonstrationen. Central bl. f. Bakt., 38:98-102, 1906.

distinctly observed in some of the cultures after they had gone through several transplants on artificial media. It was not seen in the primary Endo plates but could easily have been overlooked, as we did not have in mind this possibility when the plates were first examined. This phenomenon showed itself in our cultures in the form of irregular segments of colonies having a more translucent appearance and a roughened, sand paper-like surface.

All of our seven strains were practically identical in their biochemic characteristics. In agreement with all previous reports of the Sonne organism, glucose, mannitol and rhamnose were fermented in twenty-four hours. Acid only was formed. No gas was produced from any fermentable substance. Our strains all fermented maltose also in twenty-four hours. The other substances fermented in one day were mannose, levulose and arabinose. Xylose failed to be attacked in the twenty-one days of incubation as did also dulcitol, sorbitol, salicin and inulin. Galactose, saccharose, raffinose and glycerol showed late fermentation, the time necessary to produce a recognizable indicator change in media containing them varying from three to ten days.

The behavior of the Sonne organism in lactose media is its chief cultural deviation from the other paradysentery bacilli which are wholly unable to utilize this sugar. Litmus milk was acidified by our organisms to the point of coagulation, the time necessary to bring about this reaction varying between three and ten days. In plain lactose bouillon acidification occurred also, usually in three to eight days.

The behavior of the organism on lactose agar plates was of especial interest. The twenty-four-hour colonies on Endo's plates were white and opaque with no trace of red color. After about the third day of incubation, they began to show a pinkish center which deepened in color as incubation proceeded and by the fifth or sixth day most colonies had become quite deep red in the center, generally being paler toward the periphery. In some cultures a fringe of new growth occurred about the periphery after two or three days which was quite colorless and transparent. After from three to five days some colonies began to develop secondary colonies. These usually manifested themselves at first as tiny seed-like structures, having a lighter color than the surrounding colony. Some protruded above the surface as definite papillae and some did not.

We have studied these secondary colonies quite extensively, but have by no means as yet determined their full significance in the general biology of this organism. Most of those which grow into

papillae rapidly take on a deeper hue, some becoming much darker than the mother colony, appearing almost black in comparison and occasionally showing the typical fuchsine lustre seen in colonies of *B. coli* on Endo's medium. If one of these darker papillae is touched lightly with an inoculating needle and streaked on a fresh Endo plate, there appears on the plate in twenty-four hours or sooner many deep red colonies having the brilliant fuchsine lustre of the rapid lactose fermenters. Usually there will be also many colorless colonies typical of the original cultures. If fresh Endo plates are now made from the red colonies, the resulting colonies will all be red. No secondary colonies or papillae develop on these plates on further incubation. If streaks are made on Endo's medium from the portion of the colony outside of the papillae, the resulting colonies are all colorless and on further incubation go through the same changes as the original cultures and develop secondary colonies.

It is clear that we have here the type of variation in respect to lactose fermentation which was first described by Neisser⁴¹ and Massini⁴² in 1906 for the organism called by the latter *B. coli mutabile*, and observed since by many investigators in many species of the Gram-negative intestinal bacilli. Our lactose fermenting variant has been grown through many transplants on various types of culture media over a period of several months and has so far shown no tendency to revert to the mother type or to give rise to nonlactose fermenting variants. The variant has proved to be identical with the mother organism in all respects except its ability to ferment lactose.

The lactose fermenting variant may be obtained on liquid media as well as on solid. As has been stated, the organism produces an acidity in lactose broth in a period of from three to five days. If from a strongly acidified tube we make streaks on Endo's medium, red, lustrous colonies usually develop in twenty-four hours. Transplants from these prove to be the pure variant, or give colonies of the pure variant when further plated.

Rapid saccharose variants have been produced in the same manner as has been described for the lactose variant. Secondary colonies develop on saccharose agar in the same way as upon lactose agar, though generally later and in smaller numbers. These give the variant which has permanently acquired the property of fermenting saccharose in

42. Massini, R.: Ueber einen in biologischer Beziehung interessanten Kolistamm (*Bacterium coli mutabile*); ein Beitrag zur Variation bei Bakterien. Arch. f. Hyg., 61: 250-292, 1907.

SERUM	Highest dilution of serum giving agglutination with speeified organism.												
	STRAINS ISOLATED FROM PATIENTS								STOCK CULTURES				
	Homologous Strain	SW	RA	RP	DC	CJ	RD	MB	Sonne 353*	Sonne 355*	Sonne 356*	Sonne 357*	Shiga 340
DC	5120	5120	5120	5120	5120	5120	5120	5120	2560	2560	2560	2560	—
RP	640		160	640	640								—
CJ	1280	1280	1280	1280	1280	1280	1280	1280					—
Sonne 353	640	640	640	640	640	640	640	640	640	640			
Shiga 340	5120	2560	2560	2560	2560	2560	2560	2560	2560	2560	640	1280	5120
Flexner 361	5120	80	80	80	80	80	80	80	—				
Flexner 352	5120			40	160								
Typhoid 331	10240	40	40	40	40	40	40	40	40	40			

Table 3, Agglutination Tests With Immunized Rabbits' Serums

* Our stock Sonne cultures were received from the following sources: No. 355 is the American Type Culture Collection, No. 31 Nos. 356 and 357 were received from Dr. Soule's laboratory at the University of Michigan. No. 357 is a strain isolated by Dr. Soule himself, while No. 356 was sent to him by Nelson. No. 353 is a strain (source not given) received from the Hooper Foundation Laboratory in San Francisco.

twenty-four hours or less. In the same way the late acidified saccharose broth tubes give the variant and may be obtained in pure culture by plating on saccharose agar containing an indicator.

The two variations just described are quite independent of each other. The lactose variant is still slow to ferment saccharose and the saccharose variant requires as long as the original culture to acidify a lactose broth tube. Each gives only colorless colonies when plated on a medium containing the other sugar and an indicator. However, these colorless colonies go through the same stages as the original organism and develop secondary colonies. From these secondary colonies variation with respect to the second sugar may be obtained, giving rise to a third variant which has the stable characteristic of fermenting both lactose and saccharose in twenty-four hours.

Some of our strains developed numerous papillae also on sugar-free agar plates. These were generally small and when transplanted to lactose or saccharose agar plates showed no increased tendency to ferment these sugars.

In the serologic identification of our cultures we attempted first to demonstrate the antigenic homogeneity of the several strains isolated and their identity with stock Sonne cultures, and, second, to determine whether or not these strains were antigenically distinct from the other types of dysentery bacilli. Table 3 gives all the pertinent facts in this investigation. The agglutinating serums used were prepared by injecting rabbits first with heat-killed cultures and later with living organisms. The titers of these serums for the specific strains injected are given in the table in the column headed "homo-

logous strain." As will be seen, the titers for the epidemic strains and for the stock Sonne cultures of the serums prepared with the three epidemic cultures and with the stock Sonne No. 353 were practically identical with the homologous titer in each case. The Flexner serum and the typhoid serum, on the other hand, gave agglutinations with our strains and with the stock Sonne culture only in dilutions far below those for the homologous strain.

The high titers of the Shiga serum for our organisms we are at a loss to explain. We are investigating this phenomenon further but in the present connection it is sufficient to say that the Shiga culture, which was No. 51 of the American Type Culture Collection, was culturally atypical in that the colonies were larger and more opaque than those of the normal smooth form of the Shiga bacillus, and the culture also gave slight but definite acidification of mannite broth. Other marked cultural differences between this Shiga culture and our strains, however, proved its nonidentity with the latter as did also the absorption of agglutinin test. Absorption of the Shiga serum with an excess of culture RP removed all the agglutinins for the latter but left an unchanged titer for the homologous organism.

In view of the high titers of the Shiga serum for the Sonne strains it is surprising that the Sonne serums gave no agglutination of the Shiga culture even in a dilution of 1-20.

The demonstration of specific agglutinins in the blood serum of the patient is a convenient and rapid diagnostic aid in many diseases. In dysenteries due to the Flexner type of bacilli this procedure is of little value because of the frequent occurrence of Flexner agglutinins in the serums of normal people.

Sonne,⁴³ for example, tested the serums of 169 normal people and found 62 per cent had agglutinins for some member of the Flexner type, nearly 38 per cent agglutinating in dilutions of 1-50 or above. This obstacle to the use of the agglutinin test in diagnosis apparently does not exist, however, in cases due to the Sonne type of organism. Sonne tested a large number of normal serums for their ability to agglutinate his organism and found them all negative in the lowest dilution tested, which in most cases was 1-10. He expressed the belief that agglutination of a Sonne culture even in this low dilution was of diagnostic significance. Fraser, Kinklock and Smith,⁹ however, reported that of twenty normal serums tested, three gave agglutination in dilutions of 1-25. Nelson³² considered a titer of 1-80 or over as diagnostic.

The serums of ten of our cases were tested for Sonne agglutinins. The antigen used was chiefly a formalinized suspension of one of the epidemic strains (D.C.), but several serums were tested also with the stock Sonne culture. In all cases in which both antigens were used the results agreed at least within one dilution. Two of our serums, those of D.P. and W.C., gave no agglutination in the lowest dilution tested, 1-10. Though these two cases are believed, because of their symptoms and their relation to the other cases, to have been cases of dysentery, it should be noted that in neither was the clinical diagnosis confirmed by demonstrating the organism in the stool.

The other eight serums tested were positive in dilutions, ranging from 1-20 (1 case) to 1-640. With the exception of one case our serums were all taken a week or more after the cessation of the dysenteric symptoms. This one serum, taken four days after the onset of the disease, agglutinated the homologous organism in a dilution of 1-160 and another of the epidemic strains in a dilution of 1-80. One case (S.W.) was examined twice, nine days and thirty days after onset of diarrhea. The highest dilutions of his serum, giving agglutination of his own organism on these two occasions, were 1-640 and 1-160 respectively.

SUMMARY

In this paper is presented a clinical and epidemiologic study of an outbreak of dysentery among children in a hospital involving eighteen cases. From eight of them was isolated an organism which was proven to be identical with the Sonne type of dysentery bacillus (*Shigella paradysenteriae*, Sonne).

Though most of the cases seem to have received their infection within the hospital, at least four cases were admitted with the disease during the epidemic, indicating that the infection was present in the community. No data are presented of cases outside of the hospital.

Certain clinical observations are described which have a bearing upon the clinical recognition of the disease, its prognosis and treatment.

A thorough bacteriologic and serologic study of the organism is presented and certain new facts are brought out in regard to its variation. A brief discussion is also given of the specific agglutinating ability of patients' sera.

THE PROSTATE

AS A FOCUS OF INFECTION IN TRAUMA

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This paper is written in order to draw attention to the fact that the prostate may be a focus of infection and either aggravate a real injury or cause symptoms which may be misinterpreted as being due to an injury. It should be remembered that there may be an infected prostate present that is not recognized and may be causing symptoms. If the infection is not virulent, an infection of a minor degree may be present but yet cause no symptoms or aggravate the condition. I can recall four such cases, in which an infection was present in the prostate, yet it did not aggravate or cause symptoms. These cases complained of minor back pains.

It should also be remembered that an infected prostate is not always venereal. It is quite possible for other bacteria to gain entrance to this organ and cause infection. In my opinion about twenty per cent of infections in the prostate are nonvenereal. It should also be recalled that an original abscess or infection in the prostate may be of venereal nature but a stronger and more virulent organism has gained entrance. This will then make finding of the venereal organism extremely difficult as it may only be of a minor degree.

It should be remembered that the prostate has a rich nerve supply and pain may be referred to the lumbar region, sacroiliac region, the perineum or the testicles and thighs. It may also cause a pain which may be called arthritis. In considering the location in which I have found pain that originated in the prostate, I note the following: (1) the groin, (2) the inguinal region, (3) the testicles, (4) the back and especially the lower spine, (5) the leg, (6) the feet, (7) the perineal area.

43. Sonne, C.: Die diagnostische Bedeutung der Agglutination der giftarmen Dysenteriebacillen (Paradysenteriebacillen) in Patientenseris. Central bl. f. Bakteriologie, 76:65-87, 1915.

I have found two cases, where a chronic prostatic infection caused referred pain to the inguinal canal, simulating a pinched nerve. In one case a malpractice suit was threatened. In these cases the second massage caused the patient to have symptoms which he believed to be due to a pinched nerve. The entire condition was due to a chronic prostatic condition and probably a chronic seminal vesiculitis.

Massage of the prostate is extremely important and should be performed in the regular manner as recommended in textbooks. It is interesting to note that in many cases the average general physician or surgeon will give one massage of the prostate and, if he finds nothing of importance in the prostatic smear, will state the condition is negative. In reality there may be a very strong and positive infection present and this one massage has failed to reach the infected area.

In studying a number of cases, I have found the following with respect to results obtained from massage: the first massage was best in one or 5.7 per cent of eighteen cases; the second was best in fourteen or 77.7 per cent; the third was best in three or 16.6 per cent.

It should also be remembered that often four massages of the prostate are required before pus can be obtained. In these cases it would show that the infection was deeply hidden and, although the body may absorb the results or the poisons from the infection, it will not allow a discharge. Another point to remember is that every smear from a prostatic massage should be examined for spermatozoa. If none are found after or at the first massage, then an infection may be suspected. This may be positive for infection, even though no pus is found.

In some cases it has been found that a prostatic massage, even though no secretion has been obtained, gives a good and beneficial result. This should be considered a nerve reflex. Probably the sympathetic nerves play a marked factor in the result obtained. The type of case in which results follow is usually a neurotic of the sympathetic excitability type. There is probably a neuralgia present and this reflexly causes a low back pain, usually in the lumbosacral area. The massage sedates the prostate and the result eases the nerve excitability and there is betterment in the symptoms. I have found six of this type. A few massages gave complete relief in three cases, even though no secretion was ever obtained. In these cases there was no palpable evidence or evidence from the examining finger that infection was present.

In studying the location of pain in twenty-four cases of prostatic infection, I found as follows: (1) referred to the sole of the feet two cases, 8.3 per cent; (2) referred to the posterior iliac spine eight cases, 32.2 per cent; (3) referred to the inner thigh three cases, 12.6 per cent; (4) referred to the lumbar or lumbosacral area eight cases, 33.3 per cent; (5) referred to the groin at Poupart's ligament and in the inguinal canal area three cases, 12.7 per cent. These include both the prostate and seminal vesicles with respect to infection.

A radiculitis or inflammation of the nerve roots as they leave the spine, as in an osteoarthritis, may fully simulate a prostatic case. I have found three such and in one case, which gave the entire picture of referred pain from prostatic infection, one manipulation of the hips and lower spine caused a complete cure.

The following cases were either cured or improved by treatment of the prostate by massage:

1. Ten and nine-tenths per cent of fifty-five cases of infection.
2. Sixteen per cent of fifty-five cases of spinal pains, especially in the lower spine.
3. Eight and seven-tenths per cent of one hundred sixteen back cases causing pain.
4. Where pain was referred to the inguinal area, 3.8 per cent of one hundred three cases.
5. Pain was referred in 20 per cent of seventy-five cases of pain in the groin.
6. In 14.2 per cent of forty-nine arthritic cases.
7. In 7.4 per cent of two hundred fifteen general cases causing arthritis and various pains.
8. This makes an average of 11.4 per cent of four hundred eighty-seven cases, in which prostate caused pain, and treatment either improved or cured it.

CONCLUSIONS

In industrial cases, especially, and even in private cases the question of whether the prostate is a focus of infection should be considered. It should also be remembered that, even though there is an infection present, it may not be aggravating or causing the symptoms.

Treatment should be given on the theory that the symptoms are aggravated and, if no improvement is obtained in ten to fourteen days, it can be considered in the majority of cases that the prostate was not affecting the case.

It should also be recalled that four massages should be given on an average, before a case can be declared free from prostatic infection. This is a subject that many overlook. It is an important subject and should always be considered.

NORTHWEST MEDICINE

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Devoted to the Interests of the Medical Profession
of the Pacific Northwest

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EDITORIAL

ATTACKS ON MEDICAL PRACTICE

Among many advocates of the multifarious ramifications of the New Deal and earnest protagonists for social security there are constantly appearing certain individuals who ascribe to medical practitioners certain responsibility for existing deplorable conditions, with the implication of selfishness and lack of vision on the part of the medical profession. Whatever conclusions have been reached by various investigators concerning the high cost of sickness, there are commonly noted insinuations against medical men, in spite of assertions of a desire to accord to physicians their just dues and the belief in other factors bearing on existing conditions. The opinion seems to prevail among a large class of the population that they are entitled to medical care without cost, with no thought of the physician's need for adequate maintenance in carrying on his professional work. During legislative sessions these views and many others are concentrated in proposed enactments affecting medical practice, some even threatening the very existence of the medical profession.

Illustrating some of the principles herein suggested, proposals may be cited as appearing in the Washington legislature now in session. Recently before a crowded audience of King County Medical Society in Seattle, appeared the medical legislators R. D. Wiswall, D. F. Bice and U. S. Ford of the House and D. O. Nugent of the Senate. Each in turn discussed measures which have been introduced for consideration, demonstrating the systematic and organized campaign being conducted for circumscribing medical practice. It was stated that twenty-one bills have been presented pertaining to the practice of medicine. Seven of these are intended for annulling the basic science law or opening hospitals of the state to the practice of all forms of irregular and cultist practitioners. Both in the Senate and House bills have been introduced to license chiropractors, sanipractors, naturopaths and other cults without determination of their qualifications through the basic science examination. One specious bill would continue this examination with a board com-

posed of one representative from the medical profession and one each from all of the other varied forms for treating the sick. One bill would appoint a state hospital board for supervision of all hospitals, public and private, with the equal privilege for practice in them on the part of anyone licensed to treat the sick. As an example of class legislation is the bill that would exempt naturopaths from taking the basic science examination but require this of all others who treat the sick.

It is reported that the chiropractors and drugless healers have amassed a large war chest with a persistent lobby constantly in attendance, whose vociferous gallery applause is in evidence whenever any measure is discussed hostile to scientific medicine and existing hospital provisions. Fortunately for scientific medicine and preservation of public health, there is included among the legislators this group of able, influential medical men, under whose scrutiny all these bills must be passed before introduction for legislative discussion. Some of them will never see the light of day after being consigned to committee. When one of them appears for legislative consideration, these medical men and other friends of scientific medicine are prepared to present facts and arguments for the preservation and protection of the health of the citizens which will be convincing to the minds of all well balanced and considerate legislators. In spite of the concentrated organization for the passage of these detrimental measures, it is questionable if any of them will eventually be enacted.

Naturally the query arises in the minds of the average physician as to what assistance he can offer to thwart the enactment of these undesirable bills. Our medical legislators urged their hearers to address vigorous letters of protest to their representatives, urging them to oppose the enactment of these bills. Such letters, if received in large numbers, will doubtless influence the votes of these representatives. Also the presence of members of the medical profession, when certain bills are up for consideration, may have a counteracting effect against the active lobby of the cultists. An appeal was also made for further financial support from work of the Public Health League which represents the profession in Olympia in carrying on their fight for the preservation of the foundations and principles of scientific medical practice. By the time this issue reaches the reader, the disposition of these measures will have been determined by rejection or perchance by adoption.

NATIONAL HEALTH INSURANCE

As a result of the widespread interest in better provision for the care of low wage earners during periods of illness and the ensuing introduction of proposed congressional legislation to establish some form of national health insurance, the House of Delegates of the American Medical Association was called in special session last month to consider this subject in all its aspects. Representatives of all state associations responded and, after participating in earnest discussion of these problems, have returned home with views on these matters that will prove of vital interest to the whole profession. Dr. Brien of King of Seattle, delegate from Washington State Medical Association, presents the following comments on his observations.

When Senate Bill 1130 (known as the Wagner Bill) was introduced into the United States Senate, January 17, the question of National Health Insurance was brought out into the open. The bill, among other things, sets up plans for old age insurance, unemployment insurance, child and maternity welfare, and a plan for studying national health insurance. The bill embodies so many of the features and recommendations of the President's Committee on Economic Security as to leave little doubt of a common source of ideas.

No one can find room or excuse for criticising a plan to help crippled children. The plan for maternity welfare, however, is simply an enlargement of the old Shepard-Towner Bill, which aroused considerable opposition on the part of the medical profession and it is doubtful if that experiment has produced results commensurate with the cost. Title IV, Section 401 (a), of the bill reads as follows: "There is hereby established in the Department of Labor a Social Insurance Board to be composed of three members to be appointed by the president . . ."

Section 402, among other duties, provides "studying and making recommendations as to the most effective methods of providing economic security through Social Insurance, and as to legislation and matters of administrative policy concerning Old Age Insurance, Unemployment Compensation, Accident Compensation, Health Insurance and related subjects."

It is a little difficult to understand and one wonders why a plan for National Health Insurance is to be placed in the Department of Labor, also why nothing is said as to the qualifications of the members of the Social Insurance Board. This can hardly

be an oversight. Perhaps the explanation lies in the fact that Miss Perkins, Secretary of Labor, is known to be an advocate of National Health Insurance.

When the Committee on Economic Security began to study different problems vital to economic security, Mr. Edgar Sydenstricker, an employe of the Milbank Fund, was made chairman of the Committee on Health Insurance and allied subjects. We do not know Mr. Sydenstricker's views on all phases of this subject, except that he is known to take a rather extreme position, as evidenced by his minority report as a member of the Committee on the Cost of Medical Care. Another employe of the Milbank Fund, Mr. Epstein, who is secretary of the American Association for Social Security, Inc., which organization is sponsoring and propagandizing a bill known as the Epstein Bill, is making efforts to secure its passage in the various state legislatures. The measure is destructive to the interests of the medical profession, so contrary to its views, so subjugating to medical men in its practical application that no possibility of a compromise can even be considered.

It is unfortunate that Mr. Sydenstricker (a layman employe of the same Milbank Fund) should have been chosen as chairman of a committee to make recommendations and plans for National Health Insurance. It may be that he and Mr. Epstein have different opinions on the subject, but both have made commitments which brand them as extremists. Neither could ever be acceptable to the medical profession for a post in which its interests are so vitally concerned. Surely there is some medical man in this broad land of ours who has vision and understanding and who is sufficiently unselfish to fill so important a post. Surely there is a common ground of mutual cooperation and understanding on which so important a matter can be solved.

This whole subject is an outgrowth of economic stress and falls in line with the present tendency to look to the government for security and assistance. While an utopia in government is a visionary ideal that every one would welcome, there are some very practical considerations involved in so enormous a program as National Health Insurance, not the least of which is a consideration of cost and who is going to foot the bill. All proposals so far are designed to lay on industry at least 50 per cent of the cost, and already industry is terribly burdened. Few people are prepared to predict the effect upon national recovery of this added burden.

MISFORTUNE FOR IDAHO

In previous discussions of public health affairs of Idaho, attention has been called to the fact that it is the only state in the Union without a department of public health and with no state medical health officer. Apparently political influences have established this situation. Those interested in promoting public health have for a long time been striving to remedy this condition. Under the presidency of Dr. Charles R. Scott, assisted by members of the medical profession, public interest has been aroused to such an extent that it seemed the present session of the legislature would pass the bill to establish a proper state board of health. As indicated in the president's letter on another page, the bill passed the house and the governor had indicated his approval of it. To the consternation of all friends of public health measures, the bill was defeated in the senate, apparently by forces inimical to the promotion of the best interests of the health of the people of the state. This is one of the astounding sequences of the present uncertain state of mind on the part of legislators in our different states.

PACIFIC COAST SOCIETY OF OBSTETRICS AND GYNECOLOGY

The transactions have been published of the three annual meetings of Pacific Coast Society of Obstetrics and Gynecology since its organization in 1931, under the editorial supervision of Dr. Albert Mathieu of Portland. The membership includes leading obstetricians and gynecologists on the Pacific Coast. The published membership of the organization shows three deaths in the past three years. This is an attractive volume, reflecting credit on the publishers, showing careful work in printing and illustrations. The papers presented cover important phases of this specialty which will be attractive to all interested in this line of work.

MEDICAL NOTES

ONE HUNDRED FIFTY YEARS OF PUBLISHING is a long period of existence for any institution. Lea & Febiger, publishers of medical books, have continued during that period, antedating the Constitution of the United States by four years. Mathew Carey, the founder, came to Philadelphia from Dublin in 1784. Having known LaFayette in Paris, when the latter visited Philadelphia he presented Carey with \$400 which established him in the publishing business. Although the firm has existed under different names as publishers since that time, they have all been descendants of the founder so that it has continuously been a family institution. This firm has published *The American Journal of the Medical Sciences* for one hundred and fifteen

years, the first issue appearing in 1820. With a single exception this is the oldest medical production in the English language. The publications of this firm cover all branches of medicine, dentistry and many other collateral lines.

MEDICAL CLINICS OF NORTH AMERICA has introduced a radical change in policy. Hereafter, instead of featuring clinics from groups of men in certain cities, symposiums will be presented on special subjects with particular emphasis on diagnosis and treatment. Each number will contain a group of clinics dealing with various clinical phases of some important diagnostic problem. Thus the clinics will give the reader the important features of a problem which he might expect to receive in a postgraduate clinic. This new feature of publication will make a strong appeal to the medical profession.

AMERICAN ASSOCIATION ON MENTAL DEFICIENCY will hold its annual meeting at Hotel Palmer, Chicago, April 25-27. The Thursday and Friday sessions will be devoted to studies on mongolism, birth injury as an etiologic factor in mental deficiency, mental disorders in mental deficiency, the problem of sterilization, defective delinquency and its relation to penal institutions, community supervision of the paroled mental defective, and newer methods in institutional training for community life. The Saturday session, April 27, will be devoted to the sociologic, psychologic, and the special educational aspects of mental deficiency. Physicians are cordially invited to attend these sessions. Complete data on the program may be obtained from the Secretary, Dr. Groves B. Smith, Godfrey, Ill.

DIETITIANS. Applications for positions of chief dietitian, head dietitian and staff dietitian in the Public Health Service and the Veterans' Administration must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than March 25, 1935. Entrance salary is \$2,300 to \$2,900 a year for chief dietitian, \$2,000 to \$2,500 for head dietitian, and \$1,800 to \$2,160 for staff dietitian, subject to the usual deduction. An additional deduction will be made from the salary when quarters, subsistence and laundry are furnished. Appropriate education and experience are required. Full information may be obtained from the Secretary of the United States Civil Service Board of Examiners at the postoffice or customhouse in any city which has a postoffice of the first or second class, or from the United States Civil Service Commission, Washington, D. C.

AMERICAN NEISSERIAN MEDICAL SOCIETY was founded in Boston, Mass., June 12, 1934, being dedicated to the promotion of knowledge in all that relates to the gonococcus and gonococcal infections. There are 115 charter members, the president being Dr. J. D. Barney of Boston; secretary-treasurer, Dr. Oscar F. Cox of Boston. Invitation to membership is extended to all qualified physicians desiring to work for improvement in the management of gonorrhea.

PACIFIC COAST SURGICAL SOCIETY held its annual meeting at Los Angeles, Feb. 21-22. The program included papers by representative men from Washington and Oregon cities.

OREGON

PROFESSOR LUDWIG FRAENKEL, professor of gynecology and obstetrics at University of Breslau, Germany, presented three days of clinics and lectures at Portland, Feb. 4-6. He is recognized as one of the outstanding world authorities in the field of gynecology. His lectures were accompanied by moving pictures with the clinics at the medical school. The

course was attended by so large a number of the medical profession that seating capacity was crowded.

THE DOERNBECHER MEMORIAL HOSPITAL FOR CHILDREN at University of Oregon Medical School, is the recipient of an endowment of approximately \$5,000 from the First Hebrew Benevolent Association of Portland. The fund was left by the late Marx Cohen of Portland as a trust fund, to the association, providing that it should be utilized for medical and surgical treatment and care of diseased children under the age of sixteen years who, through poor financial circumstances, would be unable to obtain such care. The estate consists of cash and property in Portland. The fund will be invested, the income to be utilized in the maintenance of a bed in memory of Marx Cohen.

RECEIPTS FROM PRESIDENT'S BALL. Total net profits from the President's Ball in Portland, January 30, were \$1,062.55. Of this amount \$371.89 was given to the University of Oregon Medical School and the same amount to Shriner Hospital for Crippled Children. The remainder is to be utilized by Portland hospitals for research work and efforts to combat poliomyelitis, the purpose for which the ball was given.

OFFICERS REAPPOINTED. In accordance with Governor Martin's promise to retain efficient employees in office, the state board of control has reappointed Wilson D. McNary superintendent of Eastern Oregon State Hospital at Pendleton and R. E. Steiner superintendent of the State Hospital at Salem. Both doctors have been long in office and have proven their efficiency in their respective fields of labor.

APPOINTED HEALTH OFFICER. Courtney M. Smith of Oregon City has been appointed Clackamas County health officer and physician by the county Board of Health. He was given a three years contract which also makes him executive secretary of the county Board of Health and director of county health activities. His full time will be devoted to county work and care of indigent patients.

PLANS FOR HOSPITAL ACCOMMODATION. It is reported that at Gresham a four-story concrete building is to be erected at a cost of \$50,000. Besides accommodating a theater and club rooms, provision will be made for a fifteen-bed hospital with a complete surgery and modern hospital equipment.

BASIC SCIENCE EXAMINATION will be held in the Main Library, Portland, May 18. The subjects are anatomy, physiology, pathology, chemistry, hygiene. Information can be obtained from Charles D. Byrne, Secretary, State Board of Higher Education, Eugene.

OREGON ASSOCIATION OF HOSPITALS held its first annual session at Portland, February 11. Addresses were made by representatives of various hospitals and several business men of the city. Also on the program was A. M. Webster, president of the state medical society.

JAMES A. BRADLEY, who has practiced for some time at Florence, has sold his practice and equipment to O. R. Hess of Portland who will continue to practice at this location. Dr. Bradley will locate at the Eugene Hospital after taking special studies in genitourinary surgery.

A. D. ADKISSON who has practiced for some time at Gervais, has located in Freewater.

WASHINGTON

SPOKANE COUNTY SURGICAL SOCIETY held its first annual meeting at Spokane, February 9. The guest of honor was Dr. Waltman Walters, associate professor of surgery, University of Minnesota, who was the only out-of-town speaker. The society has the distinction of limiting its membership to members of American College of Surgeons. Guests were present from Oregon, Idaho and Montana. Papers were read by Drs. Mowery, Rotchford, Ahlquist, A. A. Matthews, Doland, Jennings, Andres, J. G. Matthews, Rose, O'Shea, Lien, Remington, Rosenthal, and Lambert. Diagnostic and surgical clinics were held in addition to reading of papers. This first annual meeting proved a great success that augurs well for the future of the society.

BASIC SCIENCE EXAMINATION which occurs semi-annually, was held in Seattle, January 10-11. Thirty-eight physicians were examined, of whom 33 passed and five failed. Of the three osteopaths, one was successful and two failed. One chiropractor also passed the examination.

FIRE AT STATE HOSPITAL. Late in January fire occurred at the Northern State Hospital at Sedro-Woolley, originating in the men's occupational therapy building. Owing to the efficiency of the hospital fire department, the resulting damage was comparatively slight in spite of the threat of an extensive conflagration.

PRIZE ESSAYS. The Woman's Auxiliary to Snohomish County Medical Society has sponsored an essay contest open to junior and senior high school students. The subject of the essays will be "Contributions to Scientific Medicine During the Last Century." Prizes will be \$5 for the best essay, and a year's subscription to Hygeia for the second prize.

TUBERCULOSIS SANATORIUM CONTEMPLATED. Commissioners of Whatcom County have petitioned a PWA grant for \$75,000 to construct a county tuberculosis sanatorium, an institution which it is felt is greatly needed. At present tuberculous patients are cared for at institutions in Seattle, at a cost of about \$18,000 a year. It is believed money would be saved by having their own county sanatorium.

CONTROVERSY OVER RESIGNATION. I. W. Powell, Bellingham health officer, has held that position during a series of administrations, both republican and democratic. The mayor and city Board of Health requested his resignation. After declining to comply and stating he would continue to serve until ousted as result of charges of incompetence or irregularities, such were filed with the Board and the office declared vacant on approval of the city Council. Later the Council endorsed action of the Board.

COUNTY TAKES HOSPITAL. Walla Walla County has taken possession of Blue Mountain Sanatorium, the tuberculosis institution constructed from WERA funds. The institution consists of three buildings joined by runways. The county commissioners have appropriated \$10,000 to provide furnishings.

CHELAN COUNTY MEDICAL SOCIETY held a meeting at Cascadian Hotel, Wenatchee, February 6. Following a dinner, W. Ray Jones of Seattle read a paper on "Gonorrhea and Its Pathology."

NO MONEY FOR HOSPITAL PATIENTS. Last month the county commissioners for Grays Harbor County informed the Aberdeen and Hoquiam general hospitals that no money would be available to care for indigent persons in hospitals and other county institutions after March 1. It was an-

nounced by the Grays Harbor Hospital Association that its business has been extensive during the past two years in caring for indigent patients. It is further stated that the hospitals do not intend refusing medical treatment to indigent and bed-ridden patients.

L. D. FRICKS, who for the past eight years has been in charge of United States Public Health Service in Seattle, has been appointed chief quarantine officer at Honolulu. Before coming to Seattle, he was located in Memphis, Tenn.

DONALD C. KEYES has located for practice in Bellingham with his father and brother, thus returning to his native city. He has recently been engaged in orthopedic work at the University of Chicago.

S. J. NEWSOME, who has practiced for some time at Free-water, Ore., has moved to Walla Walla, where he will practice in the future.

WEDDING. Paul R. Rollins of Seattle and Miss Martha Harlan of Farmington, Mo., were married in the latter city, January 1.

IDAHO

APPOINTED COUNTY PHYSICIAN. A. A. Newberry of Caldwell was last month appointed county physician by Canyon County commissioners. He succeeds W. C. Nolte of Nampa. Deputy physicians include R. E. Talbot of Wilder and William Mitchell of Parma.

OBITUARIES

DR. ARTHUR L. JACOBSON of Seattle, Wash., died suddenly of coronary embolism, January 29, aged 39 years. He was born in Rugby, N. D., in 1895. After graduating from the University of North Dakota in 1917, he studied medicine at Johns Hopkins University, where he obtained his medical degree in 1921. After a year's internship at Johns Hopkins Hospital, he located for practice at Rugby. He came to Seattle in 1923, where he engaged in general practice of medicine until 1931, when he made a special study of asthma and other allergic diseases, after which he specialized in this line of practice. He was a conscientious, hard working and able physician. He was devoted to his patients, each of whom he studied with a scientific mind and earnest attention. He had the respect and confidence of the medical profession which has lost one of its most efficient and promising members.

DR. JOHN B. LOUGHARY of Puyallup, Wash., died February 17, aged 74 years. He was born at Des Moines, Iowa, in 1860. At the age of five years he crossed the plains by ox-team with his parents, locating in Oregon. He obtained his medical degree from Bellevue Hospital Medical College, New York, in 1888. He located in Seattle that year and was a charter member of King County Medical Society. He specialized in nervous and mental diseases and in 1909 established Puget Sound Sanitarium of Seattle, the first private institution in the state for this class of diseases, which was maintained for a number of years. During the World War he was superintendent of Western State Hospital at Steilacoom and later was on the staff of Northern State Hospital at Sedro-Woolley. For a number of years he has been connected with Puget Sound Sanatorium at Puyallup. He was a man of genial disposition, well versed in his specialty, in which he was a recognized authority. He had many friends among the older practitioners of Seattle and Western Washington.

DR. EDMOND J. LAABE of Portland, Ore., died February 20, aged 62 years. He was born in Portland in 1872, his parents being early residents of that city. After attending public schools of Portland he studied at University of Virginia and obtained his medical degree from Columbia University College of Physicians and Surgeons, New York, in 1895. After serving internship in New York hospitals, he located for practice in Portland in 1898, specializing in obstetrics. Recently he estimated he had attended the birth of more than three thousand Portland babies, having also officiated for the mothers of many of them. During the World War he served with the Red Cross in Europe, establishing a hospital for babies on the Swiss border. He served the University of Oregon Medical School in various capacities as teacher of anatomy, pediatrics and professor of obstetrics.

DR. LELAND FRAZIER of Burley, Ida., died February 15, after a short illness, aged 56 years. He was born in Randolph county, Missouri, in 1879. After studying at Leland Stanford University, he obtained his medical degree at St. Louis University School of Medicine in 1906. For three years he practiced at Marceline, Mo., then moved to Conroe, Texas, where he practiced for two years. After a period as physician for a Hawaiian pineapple concern, he returned to Conroe in 1915. He joined the army in 1917 and after discharge he settled in Rupert, Ida., in 1920. In 1929 he moved to Burley where he practiced until his death. In 1926 he built the Rupert General Hospital and the Cottage Hospital in Burley in 1934, in which institution he died.

DR. JAMES A. MCNIVEN of Aberdeen, Wash., died February 4, after a long illness, aged 80 years. He was born in Canada in 1854. He obtained his medical degree from the University of Michigan Medical School in 1891. He first practiced in Grand Rapids, Mich., later moving to Butte, Mont. Later he moved to Portland, Ore., where he was for a time connected in practice with Robert C. Coffey. He moved to Aberdeen and was in active practice until 1923, when he was injured in an automobile accident which prevented him from carrying on his work. In spite of disability, he was a man of happy disposition with a store of native good humor which made for him many friends.

DR. EDMUND F. TAAKE, of Seattle, Wash., died February 8, after a prolonged illness, aged 59 years. He was born in Missouri in 1875. He obtained the degree of B. S. from St. Louis University, where he was graduated in medicine in 1905. The following two years he served as interne in St. Louis hospitals. He located in Seattle in 1908, where he practiced until the time of his death. He was a man of exceptional medical qualifications and a careful practitioner, which endeared him to patients as well as fellow practitioners.

DR. EDWARD F. STEVENS of Seattle, Wash., died February 12, aged 87 years. He was born in Maine in 1847. He obtained his medical degree from Bowdoin Medical School, Portland, Maine, in 1887. He located for practice in Seattle in 1888, being a real pioneer physician. He located in a section of the city, now thickly populated, which was then out in the woods, where he resided during his whole residence in the city. He retired from active practice about fifteen years ago. He took an active interest in civic affairs up to the time of his retirement.

REPORTS OF SOCIETY MEETINGS

OREGON

JACKSON COUNTY MEDICAL SOCIETY

Pres., C. A. Haines; Secty., D. H. Findley

Jackson County Medical Society held its regular meeting at Holland Hotel, Medford, February 6, preceded by a banquet. C. A. Haines read a paper entitled "Surgery Fifty Years Ago and Today." A number of physicians were also present from Ashland.

The society held a meeting at Ashland Feb. 20. G. W. Gregg entertained twenty-three members at dinner at Ashland Hotel. James C. Hayes of Medford read a paper on "Injuries and Infections of the Hand."

WASHINGTON

COWLITZ COUNTY MEDICAL SOCIETY

Pres., H. D. Fritz; Secty., A. F. Birbeck

Cowlitz County Medical Society held its regular monthly meeting following a dinner at Hotel Monticello, Longview, February 12. Papers were read by E. N. Sulis on "Focal Infections," J. S. McCarthy on "Practice of Medicine in Europe," and E. R. Birbeck on "Head Injuries."

GRAYS HARBOR COUNTY MEDICAL SOCIETY

Pres., H. C. Randolph; Secty., K. D. Graham

Grays Harbor County Medical Society held its regular monthly meeting at Aberdeen, January 10. State president, Dr. Nathan Thompson was guest speaker, who outlined some of the problems confronting the medical profession. Officers for 1935 are as follows: President, M. W. Conway, Elma; Vice-president, E. L. Calhoun, Hoquiam; Secretary and Treasurer, Chas. F. LeComte, Aberdeen. Meetings are held every third Wednesday of the month in Aberdeen.

KING COUNTY MEDICAL SOCIETY

Pres., R. L. Zech; Secty., F. H. Douglass

King County Medical Society held a regular meeting at the auditorium of Medical Dental Building, Seattle, Feb. 4, at 8:15 p. m., with President Zech in the chair. Minutes were read and approved of the meeting of January 21.

The following were elected to membership: A. R. Hederman, E. J. Benz, and A. L. Windom. The following applications were read: R. W. Kite, L. S. Harris, and G. F. Thomas.

An invitation was read from University of Oregon Medical School to attend a series of postgraduate lectures by Prof. Ludwig Fraenkel of Breslau, Germany.

D. G. Leavitt gave a case report on "Nonunion of Femur." He described various operations which have been employed for the relief of this condition. Lorenz bifurcation osteotomy is the operation preferred which was described in some detail. A patient was presented on whom this operation was performed who had a fracture of the neck eight months previously with resulting nonunion. The perfect result of the operation was demonstrated on the patient.

Brien T. King presented a patient who had suffered from myxedema who had been cured by administration of thyroid. He read a paper on "Hormones of the Anterior Pituitary Body." The recognized hormones were cited with a description of their actions and the conclusions reached which justified their administration under suitable conditions. The paper was discussed by Drs. L. H. Jacobsen, Carney, Rogers, Price and C. F. Davidson.

W. Ray Jones read a paper on the "Pathology of Gonorrhea and Its Application to Therapy." He described the growth and effects of the gonococcus and its relation to other organisms. Photomicrographs were used in illustration. Both the immediate and remote effects of medication were displayed. The paper was discussed by L. H. Jacobsen.

SKAGIT COUNTY MEDICAL SOCIETY

Pres., R. K. Behrens; Secty., F. W. Baugh

Skagit County Medical Society held its regular monthly meeting February 25, at President Hotel. Dinner preceded the meeting with Drs. Klemptner and Drtina of Seattle as guests. The meeting was called to order by R. K. Behrens, president. Minutes of the January meeting were read and approved after a correction by Dr. Behrens was made.

L. H. Klemptner read two papers: "Infectious Mononucleosis," and "Injuries and Foreign Bodies in the Eye, Ear and Nose." A. Drtina gave a general discussion on heart conditions, using as his topic "Cardiographie in Practice." The meeting was then opened to general discussion. The members had several questions to ask and cases to relate.

Dr. Cleveland announced that the medical bureau had voted to pay Mr. Barney's bill for incorporating the society. Dr. Coleman announced the staff meeting of the Everett General Hospital would be held March 13, and letters would be mailed to the members at a later date.

Dr. Behrens invited the society to meet in La Conner for its March meeting and advised that the program committee would have a good entertainment which would be social rather than scientific.

On motion of Dr. Shaw it was voted that the secretary inform the District Athletic Board the society disapproved of the county basketball tournament.

WALLA WALLA VALLEY SOCIETY

Pres., H. C. Cowan; Secty., G. R. Gowen

Walla Walla Valley Medical Society held a meeting at Walla Walla, February 14 at 7:30 p. m., with vice-president C. R. Garrett, presiding. There was an attendance of forty-one.

On motion by H. A. Mount it was voted that \$25 from the treasury of the society be sent to the state medical association for committee work during 1935. It is understood that those who had already contributed a dollar in response to the request of President Thompson, would have that amount deducted from the society's contribution.

On motion of Dr. Ingram, it was voted to return to Thursday night as the time of meeting. Announcement of programs was made for March, April and May.

An address was given by James M. Bowers of Seattle on "Diagnosis and Medical Treatment of Chest Pathology." Manford R. Waltz of Seattle discussed "The Endoscopic Diagnostic Measures and Treatment." Oscar S. Proctor of Seattle considered "Surgical Diagnosis and Treatment."

YAKIMA COUNTY MEDICAL SOCIETY

Pres., H. S. Atwood; Secty., T. J. Schott.

Yakima County Medical Society held its regular monthly meeting at Commercial Hotel, Yakima, February 11, following a dinner. About forty members were in attendance. Addresses were given by W. Ray Jones of Seattle on "Venereal Diseases," and Louis H. Maxson on "Anesthesia, Local and Spinal."

IDAHO

SOUTH SIDE MEDICAL SOCIETY

Pres., O. F. Zeller; Secty., J. N. Davis

South Side Medical Society held a meeting at Twin Falls at the County General Hospital, January 25. F. A. MacManus of Buhl gave an interesting address, telling of his experiences in the practice of medicine in Iowa, North Dakota, Canada and Idaho. W. F. Passer of Twin Falls read a paper on "Anemia in Infancy and Childhood."

The following officers were elected for the ensuing year: President, E. L. Berry of Buhl; Vice-President, Fayre Kenagy of Rupert; Secretary and Treasurer, J. N. Davis of Kimberly.

The following new members were elected: L. E. Oakes, R. A. Drake, E. T. Rees, H. L. Stowe, C. A. Terhune.

A regular meeting of the Society was held at National Hotel, Burley, Feb. 18. Dinner at 7:30 p.m. with the ladies of the Auxiliary as guests.

As a "curtain raiser," Fayre Kenagy entertained with some of his latest "The Out-of-doors Brought Indoors."

Gordon E. Davis, Hamilton, Mont., described "The Results of the First Ten Years Use of the Spotted Fever Vaccine." Mr. Davis is with the Rocky Mountain Laboratories, and took the place of R. R. Parker on the program.

The ladies of the Auxiliary to the South Side Medical Society held a meeting following the dinner.

STATE DEPARTMENTS

OREGON

REPORT OF COUNCIL OF STATE SOCIETY

The Council of Oregon State Medical Society at its February meeting considered many subjects of primary interest to the members of this society. Those of major importance will be here listed.

Ralph A. Fenton, our representative to the House of Delegates of the American Medical Association, reported that a special meeting of that body has been called to consider action to be taken by the American Medical Association in relation to pending legislation in the national congress in the field of medical care. Dr. Fenton asked for instructions from our organization and it was voted that, as he was conversant with the entire subject and the council had no advance information as to what phases of the subject were to be considered, the best interests would be served by allowing him to use his judgment in all matters in consideration.

A number of physicians have been taxed on their United States Income Tax report for use of their automobiles in their practice. Those who have had this controversy arise are instructed to file appeals. The legal division of the American Medical Association is taking the matter up with the authorities in Washington in the hope that these controversies shall not arise. Members are asked to communicate with the executive secretary regarding the matter.

A plan has been worked out whereby the medical societies of Oregon and Washington may cooperate in bringing speakers to the two state meetings, and the meetings may be so arranged that our members may attend both, without allowing the subjects to be repeated. The next meeting of the Oregon State Medical Society will be held at Gearhart, by-the-sea, September 12-14, the three days succeeding the meeting of the Washington Association.

Sending speakers from the outside to carry on a health program frequently leads to misunderstanding. It was deemed advisable to cooperate with the American Society for the Control of Cancer in carrying out their program, but the local society shall select the speakers, preferably from its own membership. Social workers in finding cases, especially those of tuberculosis, are prone to call upon outside physicians. It was felt that the best interests of the patient and the medical profession will be served by having the primary examinations made by local physicians.

It was reported that all controversies regarding fees between surgeons and the State Industrial Accident Commission are referred to the Advisory Medical Committee anonymously,

and their award is made from the facts. Physicians who treat patients under the FERA should render statements in accordance with the minimum fees of their local medical society. It was deemed advisable to ask the governor to appoint one physician on each county relief committee, as a considerable amount of the work of these committees involves health problems.

It was reported that the teaching requirements of the University of Oregon Medical School are three hundred patients per day. The cooperation of the medical societies and the school are assured to limit, as far as possible, the number of patients to the teaching requirements. It was resolved that the Medical School Clinic be not allowed to expand beyond the normal load of three hundred patients per day, and that in accordance with FERA rule 7, the free choice of physician be safeguarded.

The Council opposed the bill introduced in the House taxing hospitals. The bill for the control of venereal disease in indigent patients was approved. Unfavorable action was taken on the House bill which would without further education permit chiropractors to widen their practice. The council opposed the naturopath bill which would allow these undereducated men to sign death and other certificates. The council felt that the bill placing the hospital associations under the Industrial Accident Commission contained hidden in its wordage certain undesirable features.

A survey was reported by the American Society for Cancer Control regarding facilities for deep roentgen therapy and radium, and plans for education of the public. The Council provided for a committee of five to formulate concrete plans looking toward the control of cancer.

From the above it will be seen that the meeting of the Council covers a wide range of subjects of major import to our profession. It is hoped through these monthly messages to advise the members as to just what your officers are doing and what your society is doing for the public health and for your welfare. It is hereby hoped that membership in the society may be increased and every member will get behind the society and assist in putting into effect their program of measures to the end that the public health may be improved.

A. G. BETTMAN, *Editor.*

WOMAN'S AUXILIARY

A MESSAGE FROM THE PRESIDENT

Legislation having direct bearing on the medical profession is of such vital interest to the wives of doctors that it

consumed the major portion of study and interest in the state organization during the late legislative assembly. More and more the auxiliary realizes that in legislative years it is highly valuable to become thoroughly familiar with measures and policies approved by the legislative committee of the state society, as a protection against chance misstatements and misquotations from among our own ranks, and equally a powerful force in the formation of policies of every type of women's groups. Our influence can be particularly valuable in guiding action for or against measures that only too often are not thoroughly understood.

Legislative look-outs designated by the state president were requested to assemble all bills having to do with the medical profession and mail copies to each county president, to be reviewed and discussed at regular meetings. Personnel of the legislative group is Mrs. Hockett, wife of

state representative Dr. Clyde T. Hockett of Enterprise. She spent the entire legislative session in the capital city. Other members, all residents of Salem, are Mrs. C. A. Downs, president of the Marion-Polk-Yamhill county group, Mrs. Vernon Douglas, Public Relations chairman of the same group, and Mrs. Carl Emmons and Mrs. Burton Myers, both directors on the state board.

Through methodical study of legislative measures affecting progress of the medical profession the Oregon auxiliary hopes to fulfill the aims of our national organization in being the "intelligent reserve force," ready to act upon request now or in the future, through our Advisory Council, based on instructions from our State Medical Society.

MRS. JOHN G. ABELE,

President Woman's Auxiliary to Oregon State Medical Society.

WASHINGTON

COMMENTS ON PUBLIC HEALTH LEAGUE AND OTHER ACTIVITIES

Everett, Wash., Feb. 25, 1935.

Before this issue of *NORTHWEST MEDICINE* is in the hands of its constituency, the legislature will have adjourned and the effects of its labor will be known on the practice of medicine in the state for the next two years. I wish to commend the work of the Public Health League. Admittedly they may not have done everything that everybody would want done, but I feel they have followed faithfully the instructions of the state trustees and have kept this office constantly informed. The financial support given by the profession has not been all that could have been desired, considering the magnitude of the task. Remember that the Public Health League is a continuing organization, whose dues are \$5 per year and this is all used in the interests of the medical profession and for the health of the people of this state.

I wish to thank everyone who has contributed to the special fund for committee work. Up to date about 50 per cent of the members have contributed. To those who

have not sent in their one dollar contribution, please remember that this fund is to be used *only* for constructive committee work and under the direction of your Finance Committee.

Three county societies have been visited by me on their regular meeting nights during the last month. Two things are to be noted: first, attendance and the quality of the program; second, the interest shown in discussion of the problems of the medical profession following their program. The shadow of socialized medicine hovers over them, but all feel that we must evolve some plan to take its place and keep the control of the practice in the hands of the profession.

Now let's look ahead to the state meeting in Everett. Local plans are being made for a most successful meeting. The date is August 12-14. I wish members would send in suggestions for the program. Will those who have papers they would like to present send in their titles as promptly as possible, and will those who have scientific exhibits let us know as soon as possible.

N. L. THOMPSON,

President Washington State Medical Association.

IDAHO

FAVORABLE LEGISLATION

Twin Falls, Ida., Feb. 22, 1935.

The one piece of legislation which the Idaho State Medical Association has sponsored at this session of the legislature has passed the House by a vote of 35 to 19. This bill creates a respectable and standard public health administration for our state. The present deplorable inefficiency of public health efforts in Idaho has been a disgrace to the state and a source of humiliation to our profession. The prospects for the bill to pass the senate are considered good and we confidently anticipate the approval of the governor. The administration of the Idaho State Medical Association is very gratified by the hearty cooperation of its members all over the state in presenting the value of our bill to their representatives and senators. We also give appreciative recognition to our Governor for his acceptance of the wisdom of this change. We are deeply indebted to the devoted members of our profession serving in our legislature for their untiring labors in promoting the bill.

It is of interest to note that opposition to the bill evidently came from friends of osteopathy and chiropractic.

Although the measure is clearly and simply one for the protection of public health, the fear was expressed that it was nothing more than a measure designed to drive osteopaths and chiropractors out of business. However, the vote decided that it was after all designed only to promote health and prevent disease.

Dr. E. N. Roberts of Pocatello has returned from the recent special meeting of the House of Delegates of the American Medical Association and reports the meeting as epochal in its accomplishment. It is possible that a special meeting of the Idaho State Medical Association may be called to listen to a report from Delegate Roberts.

It is gratifying to report that there is an appreciable increase in the membership of our society exhibited in the early returns from the constituent societies. If our membership reaches the percentage that we are striving for, there need be little fear of socialized medicine in our state. I again appeal to every member of the society to become a missionary and help us to gather in the strays.

CHARLES R. SCOTT,

President, Idaho State Medical Association.

BOOK REVIEWS

THE WHITE-HEADED EAGLE. John McLoughlin, Builder of an Empire. By Richard G. Montgomery, Author of "Pechuck: Lorne Knight's Adventure in an Attic." Illustrated. 358 pp. \$3.50. The Macmillan Company, New York, 1934.

This book offers preeminently the character of Dr. McLoughlin. The startling reality which the author achieves for this stalwart figure is perhaps as much a reflection of the clarity and simplicity of the original character as of the author's artistry. It may fairly be said, however, that the author has used commendable discretion in leading his readers to build their own concept of the man from a simple recital of the stirring events which reflect his personality. In relation to the character of McLoughlin, the author, with admirable restraint, has seldom allowed himself to tincture his thesis with romantic or sentimental side-lights. The White Headed Eagle comes to us from his pen unquestionably a great personality in history, a striking man physically, a towering figure; a man of unswerving righteousness, yet without cavil or cant; a man of dignity and decision, a great and fearless organizer; a strategist of no mean ability, yet always with an eye to fairness; a great openhearted humanitarian, generous to a fault; a lover of the humanities; and at the last a tragic victim of his own greatness of heart.

Seldom in history has a character been reconstructed from any and all sources, favorable and unfavorable, achieving in sum total so few inconsistencies. Although the book may reveal minor flaws to mature critique, it cannot escape the highest praise that the author has found and created, whether through the virtue of his sources or his own skill, a poignantly fine figure in the history of this nation, second to few in its intrinsic greatness, momentous in the archives of national progress.

Unrestrained enthusiasm over the major thesis of this book may, perhaps, fairly be tempered by some minor cavil. Are we at fault in regretting a rather constant and almost studious nicety by the author in his handling of rough men and rugged events? We would rather, for example, accept McLoughlin's bastard, half-breed boy at his face value. It is no doubt generous of the author to explain that this Tom McKay was doubtless, in fact of some certainty, a legitimate half-breed by an earlier unannounced marriage. It is enlightening to know that standards in the great Hudson's Bay Company permitted no such loose relations and carryings-on as might have resulted in this young stalwart's advent into the world. Might it not have been a matter of greater tact and literary discretion to have accepted the situation at its face value? Unquestionably McLoughlin's contemporaries did so. We wonder how far the Eagle himself would have gone in his attempt to apologize for this situation. Why, then, are these elaborate explanations necessary to the supposedly emancipated and broadminded reading public of today?

Now that we have said the best and the worst which we can say of Montgomery's White-Headed Eagle, it will be well to boil down to a very practical consideration. Here is a book which must have an intense appeal to readers from all walks of life. It has great historical value. It has an emotional appeal in a sense almost beyond the author's

intent, perhaps almost as much a function of the great character of the main figure as of the author's presentation. One gathers throughout that McLoughlin's medical and surgical activities were rather a matter of expediency than choice. The book need not appeal to physicians as much in this connection as through its broader values. David Swinson Maynard of Seattle is a more important figure; William Frazer Tilmie and others have been greater characters in the medical history of the Northwest. The fact remains that the work has a universal appeal. What little can be said in criticism is buried under the fine sense of something very valuable acquired in its reading. In the delineation of this mighty figure of a man, physically powerful, spiritually intact, honest to a fault, generous, kind, essentially human, and finally tragic in his disillusionment, the author has sketched an epoch.

SCHAUFFLER.

THE YEAR BOOK OF GENERAL SURGERY. Edited by Evarts A. Graham, A.B., M.D., Professor of Surgery, Washington University School of Medicine, etc. 815 pp. \$3.00. The Year Book Publishers, Inc., Chicago, 1934.

Well selected material comprises this volume and the extensive field of surgery is covered by abstracts of the world's best literature. Comments by the editor, who speaks with authority on the many branches of surgery, definitely enhance its value. His interpolations are crisp, logical, and often whimsical. Newer anesthetics such as evipan are discussed. "Wound Healing and Pathologic Interventions" has eighty pages of excellent material. The literature on chest surgery is early becoming more abundant, while abdominal surgery, as usual, occupies the largest section of the book. It is probably useless to hope that more recent literature be reviewed, but we notice that almost two-thirds of the articles this year are from journals dated prior to September, 1933. The book reached us in January, 1935.

FORBES.

THE CLINICAL ASPECTS OF VISCERAL NEUROLOGY with Special Reference to the Surgery of the Sympathetic Nervous System. By W. K. Livingston, M.D. Clinical Associate in Surgery, University of Oregon Medical School. 254 pp. \$5.00. Charles C. Thomas, Springfield, Ill. and Baltimore, 1935.

This monograph occupies a much needed position in medical literature, since it quite adequately correlates the anatomy and physiology of the visceral nerves with the clinical aspects of various diseases in which surgery of the visceral nervous system has been so successfully applied. Part I is the most important, since it deals with the anatomy of the visceral nervous system, the physiology, the pharmacology, the questions of visceral pain and the normal regulation of blood vessels. The author gives the most commonly accepted facts and theories in this field. Part II deals with the clinical conditions treated by visceral nerve surgery, special attention being paid to vascular lesions of the extremities, chronic arthritis, angina pectoris and pelvic disorders. As far as surgical application to the various diseases is concerned, the author apparently gives his own ideas of what is the proper procedure rather than the accepted opinions of most men doing this type of surgery. This might lead to some confusion in the mind of the reader as exactly which surgical procedure is correct. On the whole, however, this part of the monograph is of considerable value, since it correlates the anatomy

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and physiology very well with the surgical application of these facts.

Part III deals with diagnostic and prognostic methods and skin temperature studies, and numerous graphs of skin temperature are included to show the method of selection of cases suitable for surgery. The author then deals with the surgical rationale of the various operations and the surgical technic. The final chapter deals with the subject of intractable pain. This is of considerable interest, since it brings up to date the various methods of relieving pain.

The author states in his general discussion that "the preceding chapters may leave the reader dissatisfied, for few fundamental problems are settled and many issues may appear to be clouded rather than clarified." In this connection the author has shown great courage in producing a monograph of this type of such a controversial subject. So many things in the field are as yet unsettled and our knowledge is making such rapid strides forward that anything published may soon become more or less obsolete. In no other work yet published is there as complete a correlation of the entire subject such as it found here. In order to get the information contained, it would be necessary for the reader to delve into an enormous amount of medical literature.

FLOTHOW.

OBSERVATIONS OF A GENERAL PRACTITIONER. By William N. Macartney, M.D. 478 pp. \$3.00. Richard G. Badger, Publisher, The Gorham Press, Boston.

Writing one's autobiography seems to have been the vogue in recent years. Some appear to be of interest to the author and perhaps to his friends, but possess little attraction to the ordinary reader. This volume is too voluminous for the casual reader. The author emphasizes the importance and need of the general practitioner and by his comments adds attraction to the life of the country doctor. There is a recital of many interesting incidents connected with the practice, touching on most specialties as well as general subjects. There are continually quotations from Uncle Eph, whose wise cracks add a more or less humor to many situations. For instance, he says, "Lots of doctors' offices look to me like they foller the same system as a cow does." "What system is that?" I asked. "Drop anything anywhere," he grinned. There is much good sense presented in the author's methods of treating many diseases. One thrown on his own resources to meet a multiplicity of situations might find useful suggestions in this volume.

THE 1934 YEAR BOOK OF THE EYE, EAR, NOSE AND THROAT. 621 pp. \$2.50. The Year Book Publishers, Inc., Chicago, 1935.

Three hundred and five pages of this volume are devoted to the eye, mostly abstracts of cases. There are comparatively few exhaustive articles and no books noted. A number of noteworthy contributions to the physiology of the eye, particularly that of Friedenwald on "Retinal Vascular Dynamics" and the "Allergic Reactions of the Ocular Conjunctiva" by Lagrange and Delthil, relating to eczematous and vernal conjunctivitis, a dozen or more abstracts of articles on detachment of the retina and its treatment by operation, abstracts on injuries of the eye and numerous newer remedies in forms of treatment are reviewed.

Contributions on the ear seem to be more laboratorial, or perhaps scientific, in that most of them are not mere

case history reports, but even so, no radical advance seems to have been made. When we come to the nose and throat and especially the sinuses, there are many new contributions. Perhaps that of Fenton and Larsell of Portland on "Histopathology and Clinical Interpretation of Experimental Sinus Disease" is of the most importance. Quite a number of pages are devoted to allergy, hay fever and its treatment, very largely case history reports. The most exhaustive review is on "External Ethmoidectomy," an article by Warren and Griffith of Tacoma, with reproduced illustrations. The book has an exhaustive index which well represents the striking contributions of the year.

WURDEMANN.

HUMAN ANATOMY. Double Dissection Method. By Dudley J. Morton, Associate Professor of Anatomy, College of Physicians and Surgeons, Columbia University, New York. Vols. I and II. \$6.00. Columbia University Press, New York, 1934.

In order to conserve time in modern medical study which combines such an extensive course of subjects in the college curriculum, the former two years course in anatomy is now restricted to the first year. The author states that the plan is to have the student make two dissections of the entire body, the first being restricted to the larger structures and visceral organs, the second applying chiefly to the vascular and nervous systems with a review of the larger structures. The students work in pairs, four to the cadaver, with two doing similar work on opposite sides. Thus they assist each other by coordinating their work. Dissection is alternated with laboratory study of the organs dissected. The two volumes herewith considered are intended as guides respectively for these two courses of dissections. In each is an outline of the technic of the section with diagrams and blank spaces in which the student may illustrate the work he is doing, with suitable comments. Thus, Vol. I is arranged for the study of muscles, bones, and internal organs, while the second details the dissection of nerves and blood vessels. One having opportunity for anatomic dissection will find these volumes useful.

TUBERCULOSIS. A Book for the Patient. By Fred G. Holmes, M.D., Director of the National Tuberculosis Association, etc. 312 pp. \$2.00. D. Appleton-Century Company, New York and London, 1935.

Intended as a book to instruct the patient, this volume deals with the tuberculosis problem in much detail. After reviewing the history of this disease and commenting on early deficiencies, there follows a discussion of the tubercle bacillus, giving much information relative to this causative organism. There is timely criticism of early indifference to the presence of this disease, with emphasis on early symptoms. Under diagnosis, the author stresses the importance of history as well as physical examination and necessity of the physician's attention to many details. Under treatment much stress is placed on rest and its importance. Part II discusses technical measures such as pneumothorax, the phrenic operations and thoracoplasty. While this volume may seem somewhat elaborate for the patient's comprehension, he will certainly acquire much useful knowledge of this disease from its reading.

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No. 4

ROCKY MOUNTAIN SPOTTED FEVER

EPIDEMIOLOGY WITH PARTICULAR REFERENCE TO
DISTRIBUTION AND PREVALENCE IN THE
WESTERN UNITED STATES*

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Since Rocky Mountain spotted fever was first recognized as a specific infection in the northern Rocky Mountain region of the United States, there has been a vast extension of the geographical limits within which endemic foci are known to be present. The territory now included involves a very large part of the United States and extends northward into at least southern Canada. In the western United States the pushing out of the known limits of endemicity has been more or less gradual over the past thirty years, but definite knowledge of occurrence in the fifteen Mississippi valley and eastern states, now known to be concerned, has essentially all been secured within the past three years; that is, since its positive identification in Maryland and several adjacent states by Rumreich, Dyer, and Badger¹ in 1930. Concerning this tremendous expansion of the endemic region, two pertinent questions suggest themselves: first, is Rocky Mountain spotted fever increasing in prevalence; second, has there been an extensive dispersal of spotted fever

virus from the Rocky Mountain region. Neither question can be answered with any degree of definiteness at this time, but certain data of some significance in relation thereto are presented in this paper.

These data pertain particularly to prevalence and distribution in the western United States. Admittedly there are many inaccuracies involved, due especially to the obscurity which necessarily clouds the early history of the disease in the Rocky Mountain region. Also, there is the further fact that the presentation of case data as given by states and counties, although it serves roughly the purpose of this paper, is a poor way of bringing out epizootologic facts relative to this disease, the maintenance and perpetuation of which are dependent on factors resident in nature. It is of purely accidental occurrence in man and the distribution of virus and its local prevalence bear no fundamental relationship to arbitrarily established political or geographic subdivisions.

PREVALENCE

Although Rocky Mountain spotted fever was presumably present in the Rocky Mountain region long before that part of the United States was settled, it was not until the late 1890's that it was commonly recognized as a disease entity. This, and the fact that reporting of the disease in most of the states concerned has been required only during relatively recent years (in some states it is still poor) have made it difficult to secure figures of epidemiologic significance regarding the prevalence of infection in man.

*Read before Section on Epidemiology of the American Public Health Association, Indianapolis, Ind., Oct. 9, 1933.
1. Rumreich, A., Dyer, R. E. and Badger, L. F.: Typhus-Rocky Mountain Spotted Fever Group: Epidemiological and Clinical Study in the Eastern and Southeastern States. Pub. Health Rep., 46:470-480, Feb. 27, 1931.

State	Earliest Known Occurrence	Number of Reported Cases Since Records of Any Value Have Been Available		Cases	Number of Known or Estimated Earlier Cases		Total Cases
		Period			Period	Cases	
Montana	1872	1914 through	1933.....	699	Before 1914—Known	366	1065
Wyoming	1877	1914 through	1933.....	963	Before 1914—Known	387	1350
Oregon	1887	1913 through	1933.....	795	Before 1913—Known	351	1146
Idaho	1870	1909 through	1933.....	3833	Before 1909—Estimated	6000	9833
Nevada	1880	1911 through	1933.....	242	Before 1911—Known	317	559
Utah	1908	1915 through	1932.....	235	Before 1915—No Date .....	.....	235
Colorado	1885	1912 through	1933.....	240	Before 1912—Known	56	296
California	1903	1915 through	1933.....	103	Before 1915—Known	26	129
Washington	1904	1912 through	1933.....	54	Before 1912—Known	2	56
TOTAL—7164					TOTAL—7505		

Chart 1. Case totals for Western United States in which Rocky Mountain spotted fever is known to have been endemic for many years.

Chart 1 gives the available data for the nine western states in which it is known definitely that spotted fever has been present for a long period. There is listed for each state, the year of earliest known occurrence, the number of known or estimated early cases, the number of known cases since records of any value have been available, and the case total.

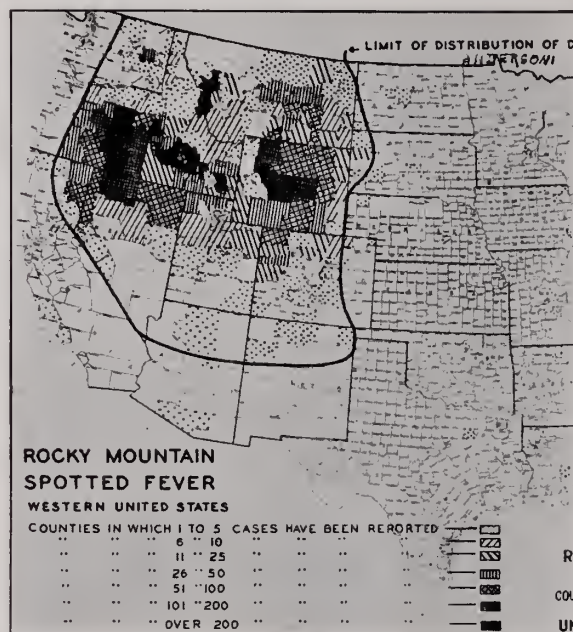
The number of cases listed, since records of some value have been available, is undoubtedly the most complete for Montana. The Wyoming, Oregon, California and Washington data are next in accuracy. The data for the period from the year of earliest known occurrence until there were official or other reasonably reliable records for the respective states are based on memory only and represent but a small percentage of the physicians who have practised in the areas concerned. They are patently very incomplete.

By far the largest number of cases has occurred in the state of Idaho. Even so, the total of 3,833 listed for the period 1909 to 1933 is certainly considerably below the actual number and the estimated 6,000 cases prior to 1909 are probably quite conservative. The majority of infections have been in the Snake River valley in the southern part of the state. Incidence in this section has very markedly decreased in recent years, a point which will be referred to again in more detail.

Wyoming is the state second in case total with 963 cases since 1914 and a total of 1350 known cases. Oregon is third with 795 cases since 1913 and 1146 known cases. Montana is fourth with 699 cases since 1914 and 1065 known cases.

Of the nine states listed, Washington has reported the smallest number of infections, a total of but 56 since 1904.

The average number of known cases per year in each state since records have been available is as follows: Idaho, 153.32 (1909 to 1933); Wyoming, 48.15 (1914 to 1933); Oregon, 37.90 (1913 to 1933); Montana, 34.95 (1914 to 1933); Utah, 13.05 (1915 to 1932); Colorado, 7.50 (1912 to 1933); Nevada, 7.33 (1911 to 1933); California,



Map 1. Showing relative prevalence of fever by counties.

5.42 (1915 to 1933); and Washington, 1.69 (1912 to 1933).

Map 1 is the result of an attempt to show graphically those sections of western United States, in which spotted fever has been most prevalent. Counties in which 1 to 5, 6 to 10, 11 to 25, 26 to 50, 51 to 100, 101 to 200, and over 200 cases have occurred are indicated in various ways. It is shown plainly that the areas from which the largest number of cases has been reported are within or adjacent to the central northern Rocky Mountain region. This is also the region of earliest known occurrence. The areas of greatest prevalence have been southeastern Oregon, central southern Idaho, central Wyoming, north central Nevada and a small section of central western Montana bordering Idaho. They have no outstanding topographical, faunal or floral features in common.

A further glance at this map shows that there has been a decreasing number of cases as one goes east, west, north or south from the region concerned. However, all areas of any considerable prevalence lie within the range of the Rocky Moun-

tain wood tick, *Dermacentor andersoni*, the limits of which are shown by a heavy black line. On the other hand, there are within this range numerous smaller or larger local areas from which infection has never been reported; in some of them ticks are extremely abundant. The sections of low prevalence are, in many instances, areas from which cases have been reported but relatively recently.

Outside the range of *D. andersoni* other species of ticks of which we have but little detailed knowledge are concerned: *D. variabilis* in the Mississippi valley and perhaps in southwestern California, and possibly *Amblyomma americanum* in the lower Mississippi valley and *D. occidentalis* in parts of California.

CYCLES

Of particular interest in connection with the prevalence of spotted fever is the apparent cyclic tendency. This is well illustrated by the prevalence curves for seven states as shown on chart 2. The curve for each state covers that part of the period from 1912 to 1933 for which significant data are available. The maximum number of cases occurring in any one year is indicated in the second column. The tendency toward cyclic prevalence is better indicated by the curves for Oregon, California, Wyoming and Montana. It is best shown, however, on chart 3 by the curve resulting from the combined data for all the seven states concerned. The latter curve indicates definite peaks of incidence in 1915, 1922, and 1929 and again in 1932. Comparison of charts 2 and 3 shows that there is a rough correlation between the composite curve and those of the individual states (charts 2, 3, 4).

Chart 4 has similar curves for three Montana counties. These indicate the same general tendency toward peaks of prevalence. While the prevalence curves for smaller areas, such as counties or small localized foci, usually show a rough agreement with those for larger inclusive areas, they do not, nevertheless, always correspond exactly. This accounts for the subpeaks shown on chart 3.

Basic reasons for these cycles are not fully apparent. There are three possible factors involved: (1) variations in the number of persons exposed, (2) variations in tick abundance, and (3) variations in the percentage of ticks carrying virus capable of producing frank infection.

Since there is a reasonably close correlation between local, state and regional cycles of prevalence, it may safely be assumed that variations in the number of persons exposed is not a considerable factor. In small local areas it is likely of some oc-

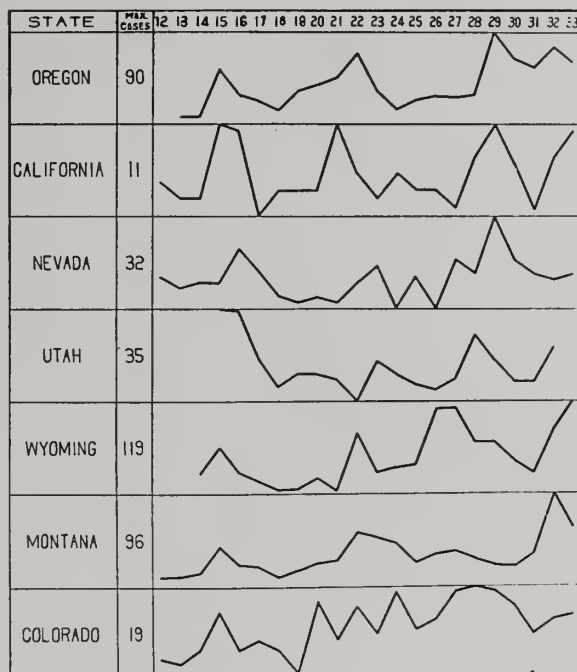


Chart 2. Rocky Mountain spotted fever chart to show peaks of incidence in certain western states 1912 to 1933.

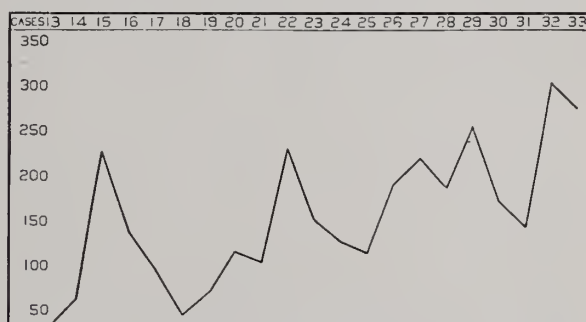


Chart 3. Rocky Mountain spotted fever curve, showing incidence in Western United States, 1913 to 1933. Includes data for Oregon, California, Wyoming, Montana, Utah, Nevada and Colorado.

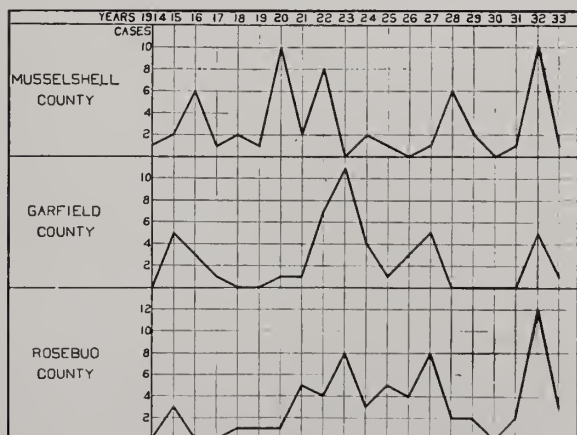


Chart 4. Rocky Mountain Spotted Fever—Prevalence. Musselshell, Garfield and Rosebud counties, Mont., 1914 to 1933.

casional importance. As an illustration of this point may be cited the occurrence of several cases near Mina, Mineral county, Nevada, in 1913, to which

area there had been an influx of prospectors and others, due to a supposed gold strike. These people remained but a short time. No previous cases were known from this locality and none have been reported since.

In regard to variations in *D. andersoni* abundance, it may be stated that, while it is apparent there is an increased exposure to tick bite during periods of increased tick prevalence, nevertheless periods of greatest tick abundance are not always associated with corresponding increases in cases. On the contrary, it has been noted frequently in local areas that cases may be more numerous during seasons of lower tick abundance. This suggests that in some years and localities, at least, the prevalence of infection in man is more closely related to the percentage of ticks that carry strains of virus capable of producing frank infections.

While each of the three factors mentioned above seems to play some part in case prevalence, it is probable there are underlying influences that are even more fundamental. These concern particularly variations both in tick abundance and in the percentage of ticks carrying virus that will cause frank infections. An increased abundance of ticks is obviously the result of more favorable tick conditions in nature. Host conditions for all active stages—larvae, nymphs and adults—must be favorable during the two seasons preceding the appearance of the adults of any tick generation concerned, and there must also be favorable meteorologic conditions during that portion of each year that is passed in estivation and hibernation. The significance of the latter conditions is illustrated by the fact that a continuous snow-covering during the winter and a lesser range of temperature variation, even though the weather be cold, is more favorable for successful hibernation than is an open winter with repeated freezing and thawing. Host abundance, in its turn, is affected by such conditions as the availability of suitable food for the various species, the presence or absence and relative abundance of predators, and periods of favorable or unfavorable weather.

The possible factors that affect the degree of virulence of the virus in ticks in nature, and which consequently determine whether it will cause frank or inapparent infections, are not understood. That such factors are certainly involved, however, is shown by evidence such as the following: In a certain local area in western Montana it was demonstrated during a certain year that as high as three per cent of the tick population carried virus capable

Year	Cases	Year	Cases
1900.....	3	1917.....	4
1901.....	0	1918.....	2
1902.....	2	1919.....	1
1903.....	4	1920.....	1
1904.....	4	1921.....	0
1905.....	No Cases During This 9- Year Period	1922.....	3
1906.....		1923.....	3
1907.....		1924.....	2
1908.....		1925.....	3
1909.....		1926.....	0
1910.....		1927.....	0
1911.....		1928.....	3
1912.....		1929.....	0
1913.....		1930.....	1
1914.....	2	1931.....	2
1915.....	3	1932.....	4
1916.....	1	1933.....	5

Chart 5. Prevalence, Carbon county, Mont., 1900 to 1933.

of producing frank recognizable infections in laboratory animals. In this same area the next year it was impossible to show the presence of spotted fever virus in a single tick. In another area similar results were secured during the first year, while during the following season only virus that would cause inapparent infections could be shown (Chart 5).

Another curious phenomenon, closely related to this discussion of cycles, is the absence of cases from local endemic sections during several consecutive years. One of the best examples of this has been in Carbon county, Montana (chart 5). The first record of occurrence in this county was in 1900. Cases occurred in each of the subsequent years, except 1901, through the year 1904, but during the next nine years (1905 to 1913) there was not a single case. Since 1913 there have been but four seasons during which cases have not been reported and only two of these were consecutive. This phenomenon has most frequently been noticed following the first reported occurrence of spotted fever in relatively localized areas. For instance, four cases each were reported from Carter and Powder River counties, Montana, during the year 1914, the first known occurrence of human infection in southeastern Montana. Additional cases were not reported from these counties until 1923 and 1924, respectively.

TREND OF PREVALENCE

Chart 3, which shows the composite case curve for the past twenty years for seven of the eight western states in which spotted fever has been most prevalent, suggests an increasing occurrence over the region concerned. Idaho data were not included in this curve because of a very marked decreasing prevalence that would obscure the actual situation in the other states. The similar curves for the separate states, as shown on chart 2, reveal the same general trend toward increased prevalence in each one, with the possible exception of Utah. There seems to be no sound reason to question that this increasing incidence is real as well as apparent, al-

though the true rate of increase is possibly less rapid than some of the curves suggest, due to the fact that reporting has unquestionably been better during the latter part of the period.

There are certain parts of the West, on the other hand, in which there has been a definite decreasing prevalence. This has been most marked in southern Idaho. Prior to 1909 Maxey² wrote that the annual incidence for Idaho ranged from 278 to 528 cases, nearly all originating in the Snake River valley, and further stated that only slightly more than half the physicians in the infected areas replied to his questionnaires. Additional evidence of high early prevalence is afforded by the number of cases which were attended by individual physicians. For example, Dr. F. W. Smith attended over 900 cases while practicing at Mountain Home prior to 1900 and Dr. Mather, who succeeded him, treated 407 cases from 1901 to 1920.

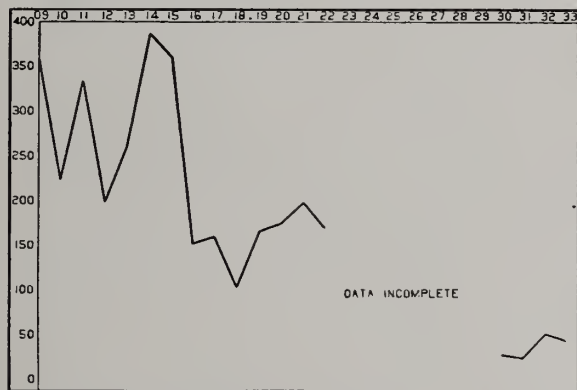


Chart 6. Rocky Mountain spotted fever. Curve of incidence for State of Idaho, 1909 to 1933.

Available figures for the period since 1908 are shown on chart 6. Those for the years 1909 to 1915 were collected by Maxey; those for 1916 to 1922 were obtained through a questionnaire sent to Idaho physicians by the writer in 1923 and are doubtless somewhat low. Information for the period 1923 to 1930 is so incomplete that this part of the curve has been omitted, but it is certain that there was a definite downward trend. The data for the years 1931, 1932, and 1933, however, showing 25, 53, and 44 cases, respectively, are reasonably accurate. The decreases in annual incidence from an average of several hundred cases prior to 1916 to approximately 41 for the past few years has been so marked that one can seemingly safely assume that no cyclic phenomenon is involved. In fact, the decrease has been even more marked than indicated

by the curve, since, in recent years, an increasing proportion of Idaho cases have been reported from the northern part of the state from sections not known to be infected a decade ago.

The changing agricultural conditions in southern Idaho, i. e., in the Snake River valley area, have been of some significance in relation to the decreasing prevalence of spotted fever. For many years sheep raising was the only consequential type of agriculture throughout almost the entire valley. In this industry the degree of exposure to tick bite is unusually high and a large percentage of spotted fever infection was among persons thus employed. More recently sheep raising has been almost crowded out of relatively large areas by more intensive forms of agriculture that are less favorable to ticks and hence to spotted fever. For example, in Washington county dry land wheat raising on an extensive scale has almost driven out the sheep, and whereas there were 36, 70, and 47 cases reported in this county in the years 1910, 1911, and 1913, respectively, there were only 0, 11, 1, and 1 cases for the years 1930 to 1933. Dr. G. W. Waterhouse, who has practiced in this county for many years, has advised that he formerly treated 35 to 50 cases each year, now one to three.

In other parts of the Snake River valley large irrigation projects have been involved. Though the first settling of these projects caused an actual increased local spotted fever incidence, the gradual grubbing out of the sagebrush and the accompanying increase in the extent of cultivated lands created less and less favorable tick conditions until infection within these areas is now of far less frequent occurrence.

In spite of such changes, however, sheep raising is still the most important single industry, but better working conditions, such as the required use of camp wagons (formerly herders were on foot and slept on the ground), have lessened to a considerable degree the danger of infection among the herders. Furthermore, during recent years (1926 to 1933) nearly all persons engaged in handling sheep have been vaccinated.

Another factor of possible consequence in relation to the decreased prevalence is the extensive local campaigns that have been carried on against rodents. These are far more effective under sagebrush desert conditions than in the more rugged sections of the Rocky Mountain country and have caused a marked reduction in the abundance of ground squirrels and jack rabbits which are important local hosts of the larval and nymphal wood ticks.

2. Maxey, E. E.: Rocky Mountain Spotted (tick) Fever; with Special Reference to Casual Factors, Mortality and Geographical Distribution in Idaho. *Med. Sentinel*, 16: 666-678, Dec., 1908.

In direct contrast to the condition of decreasing prevalence in the Snake River valley has been the equally patent increase in Montana (chart 2). In the latter state, however, it should be noted that increasing incidence has been accompanied by an even more marked extension of the endemic area within the state. The highest peak of prevalence, 96 cases in 1932, is nearly double the previous high point of 56 cases ten years before.

In the older endemic states, in which increasing prevalence is indicated, the extension of the known endemic region into new territory has played a less conspicuous part. Wyoming and Oregon are good illustrations. The endemic area has increased less markedly and, in further contrast to Montana conditions, relatively few cases have occurred in the newer areas of infection. It is probable that in these states, as well as in the others here concerned, there has been a more or less definite tendency toward increased prevalence.

Areas of increasing prevalence may be roughly divided into those in which settlement is in actual progress and those which have been settled so long that local agricultural and occupational pursuits have become more or less stabilized. In the latter the reasons involved are far from clear. In the former there is, for a time at least, an increasing exposure as settlement proceeds. This results from the more favorable tick conditions that usually accompany agricultural development. The subsequent course of incidence depends upon the local type of agriculture pursued. If this is intensive or some type of extensive agriculture such as the raising of wheat, then conditions become less and less favorable for ticks and the local natural maintenance of the virus, and cases will become less and less numerous or may disappear. If, on the other hand, the local agriculture is of an extensive type, such as stock raising, there is then a tendency to perpetuate those conditions which are favorable for ticks, and a smaller or larger number of infections will continue to occur.

The conditions above discussed as being concerned in increased and decreased prevalence do not seem of offer a complete explanation of these phenomena. In fact, it is likely that there are ecologic factors, of which we have but little knowledge, that cause variations in the virulence of tick virus in nature, and that the functioning of such factors frequently play a role of more or less importance in the prevalence of spotted fever in man.

DISTRIBUTION

The early investigators of Rocky Mountain spotted fever, Wilson and Chowning (1902 and 1903), Anderson (1903) and Stiles (1904), secured but scanty information relative to its distribution. They thought it limited to the central northern Rocky Mountain region, that is, to that section of the western United States which is now recognized to contain the areas of greatest prevalence. Knowledge of early distribution has since been greatly increased. However, it is still far from complete.

At the present time the virus is known to be endemic in all the Pacific Coast states, all the Rocky Mountain states, and east of the Rockies and west of the Mississippi in parts of Minnesota, Iowa, North Dakota, South Dakota, Nebraska, Texas and Louisiana, while possible cases also have been reported from Missouri, Oklahoma and Arkansas.

Maps 2 to 8 show the distribution of Rocky Mountain spotted fever as known west of the Mississippi for the end of each five-year period from 1905 to 1930 and finally in 1933. Each map shows the complete distribution by counties at the end of the period covered and also shows the new counties added. The latter are cross-hatched.

Map 2 shows distribution as now known for 1905, which is considerably more extensive than was recognized at the time, particularly in the states of Wyoming, Oregon, and Nevada. Map 3 for 1910 shows twenty-three counties added in Washington, Idaho, California, Nevada, Utah, Wyoming and Colorado. Since 1910 the extension of the known endemic area has been more rapid. Map 4 for the five-year period 1911 to 1915 shows forty-four new counties. The extension of most interest was eastward, where we find a considerable portion of eastern Montana and northeastern Wyoming has become involved. Furthermore, the first extension into a new state (South Dakota) is shown. Of further interest is the occurrence of two cases in the most northeastern county of Colorado (Sedgwick), which is within *D. variabilis* territory, and considerably east of the known range of *D. andersoni*.

The 1920 map shows an additional thirty-one counties in eight states and an extension of the endemic area into another new state, North Dakota. Of interest during this period is the occurrence of a case in Ventura county, one of the coast counties

Map 2. Endemic sections of Western United States as known for 1905.

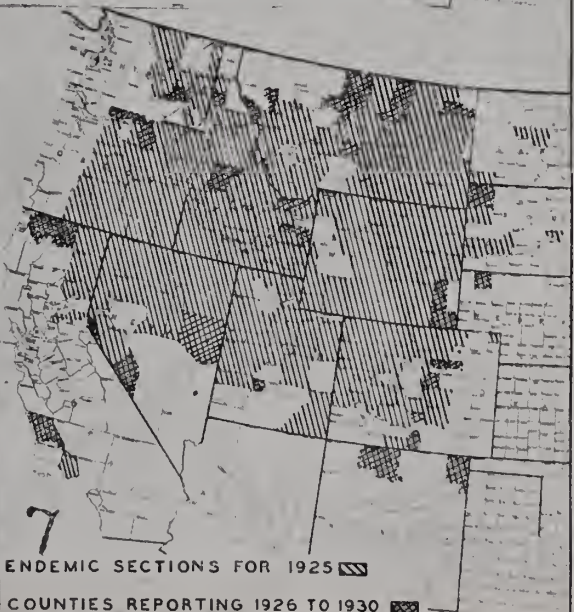
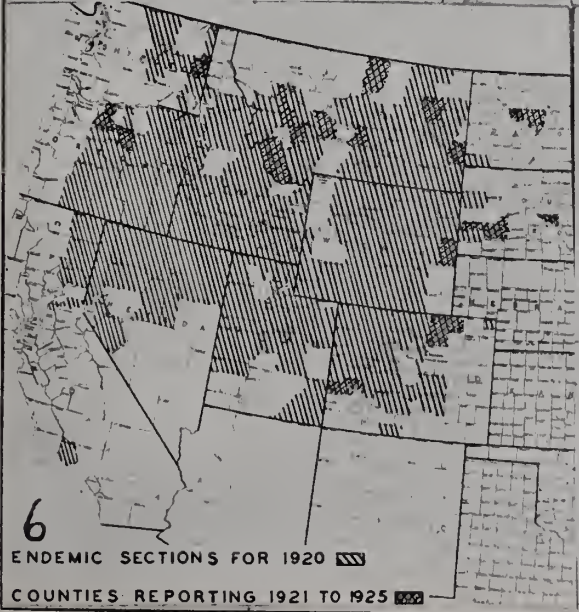
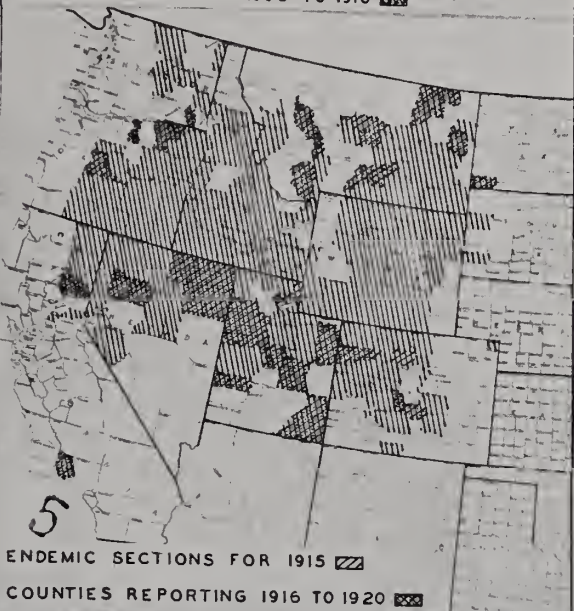
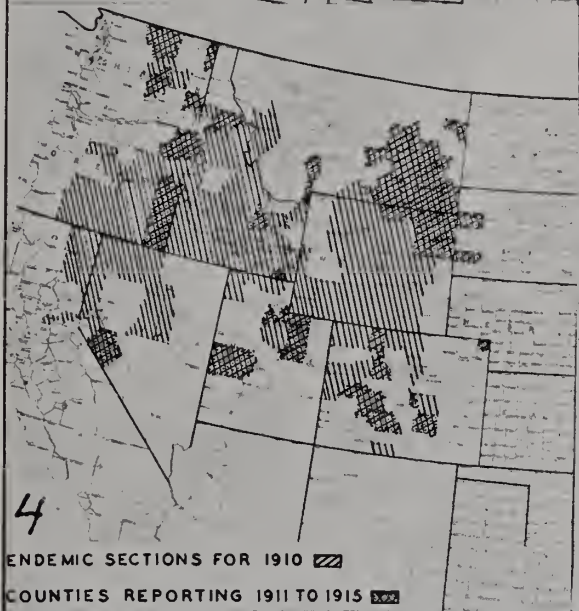
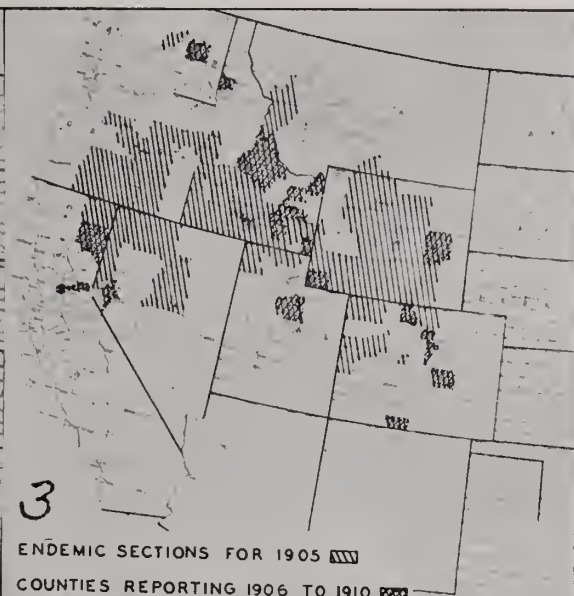
Map 3. As known for 1910.

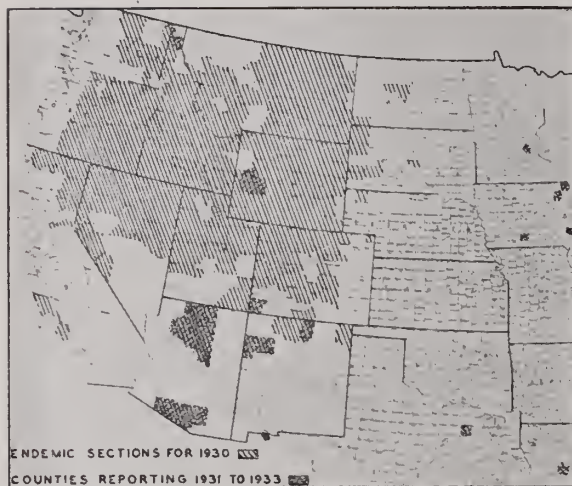
Map 4. As known for 1915.

Map 5. As known for 1920.

Map 6. As known for 1925.

Map 7. As known for 1930.





Map 8. As known for 1933.

of southern California, a long distance west of the nearest known occurrence of the Rocky Mountain wood tick. The possible local ticks which could have been concerned are *D. variabilis* and *D. occidentalis*, the former a known transmitting agent, the latter a proved potential one.

The 1925 map adds seventeen counties in seven states; two of these, McLean county in North Dakota and Hughes county in South Dakota, were in *D. variabilis* territory.

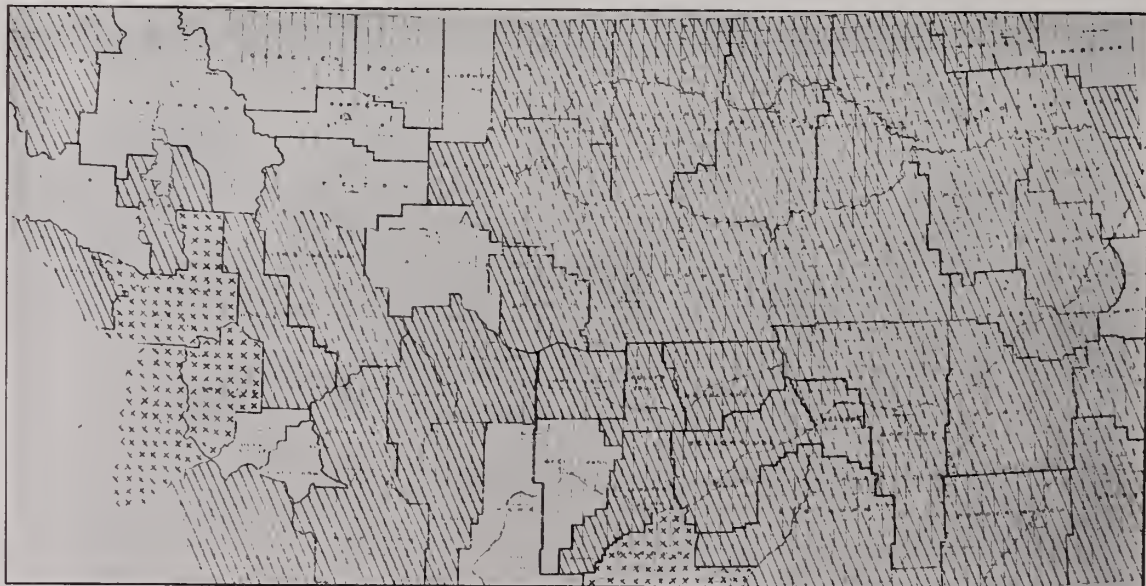
On the 1930 map, thirty-three new counties in twelve states are indicated. Occurrence is shown in two new states, Dawes county in Nebraska and Rio Arriba and Union counties in New Mexico. Dawes county, Nebraska, is outside the range of *andersoni*. In California a new coast county, San Luis Obispo, is involved. Previous remarks regard-

ing ticks in Ventura county, just to the south, apply also to this county.

The 1933 map shows only twelve new counties, but its point of real interest is that nine of them lie within five new states, Arizona in the far West, and Minnesota, Iowa, Texas and Louisiana in the Mississippi valley. Four counties in three widely separated parts of the state are involved in Iowa.

These maps indicate that there has been a vast extension of the known endemic region in the far West and Pacific Coast states during the period 1905 to 1933 and that there are now definite foci of infection in at least seven states between the Rockies and the Mississippi river. Furthermore, since 1930, as a result of the findings of Rumreich, Dyer, and Badger,¹ previously referred to, the occurrence of Rocky Mountain spotted fever has been proved east of the Mississippi in the District of Columbia and the following states: New York, New Jersey, Pennsylvania, Delaware, Virginia, Maryland, North Carolina, South Carolina, Georgia, Tennessee, Indiana and possibly Alabama. It is apparent, therefore, that spotted fever virus is resident in nature throughout a large portion of the United States, and that the extent of country now known to be involved represents a tremendous increase of territory over that originally thought to be concerned twenty-five to thirty years ago. Furthermore, much of this area has been added within the past few years.

Recognizing these facts, one is naturally led to wonder just how this great increase in endemic territory has come about. Has there been an actual dispersal of the virus in the West to the range



Map 9. Shows infection in Montana. In counties marked (x) infection has been reported since 1913; in counties marked (x) infection was known prior to 1914.

limits of *D. andersoni* and from this range to other parts of the United States and Southern Canada?

The data presented on maps 2 to 8 are certainly suggestive of an actual spread in the West. They show a center of prevalence in the central northern Rocky Mountain region and during the past twenty-eight years a continual outpushing of the known limits of endemicity. Also there is a decreasing incidence from the center toward the periphery. Conditions in Montana, in particular, have seemed to favor the idea of actual spread. For many years spotted fever was known only in three Montana counties, Ravalli, Missoula and Granite in a compact group in the western part of the state bordering Idaho, and since 1900 in Carbon county bordering Wyoming in eastern Montana (map 9). In 1914 isolated cases were reported from Musselshell and Richland counties in the eastern part of the state and in 1915 in Big Horn, Custer, Carter, Garfield, Prairie, Powder River, Rosebud and Treasure counties (also in the eastern part) and in Gallatin in the central mountainous section. Since then additional counties have been involved every few years until infection is now known to exist in forty of the total fifty-five counties (map 9). Certainly it would seem that in this state, where spotted fever investigations have been in progress for many years, the disease would not have passed unrecognized in eastern Montana for any considerable period.

In spite of these points and other data which might be mentioned in favor of the possibility of spread, there is still considerable contrary evidence. In the first place, it is not felt that an absence of case reports from a given area should be accepted as definite indication that cases have not occurred. Certainly this is true in the West, where there were no official records until relatively recent years. To illustrate, only a short time ago data were received of the occurrence of spotted fever cases in 1902 in both Eureka and Lander counties, Nevada. Our earliest previous records were for 1921 and 1915, respectively. Again, the earliest authentic record in New Mexico is for Union county in 1927, but I have the statement of Dr. W. S. Williams, now of San Diego, California, that he attended severe cases at Santa Fe as long ago as 1898. For Arizona we have no authentic records prior to 1931, yet a possible case was reported in 1915 and McClintic (1912) included Arizona in the list of states in which infection was then known. His source of information has never been learned. As far as eastern Montana is concerned, there are reports in the literature of isolated supposed cases in Fergus and Park

counties in 1904. Also, certain eastern Montana physicians have written me of possible cases, which they recall, prior to the definite recognition of spotted fever in that section of the state in 1913. One such record goes back to 1903. While I have not felt justified in considering most such reports as definite, nevertheless they do suggest that spotted fever may have occurred in many sections of the West much earlier than indicated by our known authentic records."

In regard to the Rocky Mountain region, it appears likely to me, after eighteen years spent in studying western conditions, that there has not been any considerable outward expansion of the Rocky Mountain endemic area. The following possibilities are suggested to account for the regional distribution as at present known: (1) that long ago foci of Rocky Mountain spotted fever were scattered throughout a much larger part of the Rocky Mountain region than was then suspected or has since been generally supposed; (2) that from such foci there has been an intensive dispersal of the virus to adjacent territory, but only within the *D. andersoni* range; (3) that this dispersal has been accomplished largely, perhaps entirely, by the intensive spread of *D. andersoni* as rapidly as this has been made possible by changing conditions; and (4) that any outward (i. e., extensive) spread has been the result of a relatively slight outpushing of the limits of the natural range of *D. andersoni*. If time and space permitted, many epidemiologic observations could be cited in favor of these four hypotheses. I do, however, wish to emphasize the point that local foci may exist unsuspected for many years, by referring again to the several cases of spotted fever that occurred in 1913 among persons who took part in a gold rush to an isolated mountain locality near Mina, Nevada. No cases were known there before and none have been reported since; this for the evident reason that no previous or subsequent parallel exposure had or has occurred.

Concerning the possibility that shipments of cattle, horses or sheep carrying infected *D. andersoni* could have been responsible for spreading infection from the Rocky Mountain region to the Mississippi valley and the East, the following points are worth consideration. Domestic animals carry only adult *D. andersoni*. The male and female ticks, moreover, feed on only one host, i. e., they do not normally detach from one host and reattach to another. When feeding is complete they leave the host, the males dying, the females first depositing eggs.

Hence, if they are transported to some far distant point, they themselves are not normally a great source of danger in regard to the establishing of infection locally. The danger, such as there is, lies in the progeny of infected females. What chance the latter may have of survival under unfavorable conditions beyond the limits of their natural range is perhaps uncertain. Such evidence as there is, however, is negative, since there is no known authentic record that *D. andersoni* has become established at any point in the central or eastern states. Furthermore, if this tick is a source of real danger and has been responsible for a dispersal of the virus to the parts of the country concerned, it would seem that there should be a clear trail of cases leading eastward along the railroad lines over which stock shipments are made and along which, at established points, the animals are taken from the stock cars for feeding and watering.

Litterer³ has suggested the possibility that dogs shipped from Montana in 1931 were responsible for introducing infection into Tennessee, but the epidemiologic data are not conclusive. However, Badger's⁴ recent finding that dogs are susceptible to spotted fever suggests that they perhaps afford a more likely means of introducing infection into areas supposed free of the virus than do the supposedly more resistant horses and cattle. This danger would be greater in the case of dogs transported from or between points in *D. variabilis* sections than for those shipped from *D. andersoni* areas. The latter tick is found on dogs far less frequently. In connection with dogs it is worth while to bear in mind the brown dog tick, *Rhipicephalus sanguineus*, of the eastern, southeastern and south central states. Though not at present known to be a carrier of Rocky Mountain spotted fever in the United States, it infests dogs in large numbers, it has been shown experimentally to carry spotted fever virus from stage to stage and from generation to generation (Parker, Philip, and Jellison⁵), it has been demonstrated that ticks of this species will acquire infection from infected dogs (unpublished data of the Hamilton Laboratory), and it is the known transmitting agent of boutonneuse fever, a related infection that has much in common with spotted fever. It may yet be proved identical. Furthermore, the habits of *R. sanguineus* are such

as to suggest that it is of considerable potential importance as a possible agent for spreading spotted fever virus.

This discussion of possible agents of spotted fever dispersion in relation to the present recognized distribution of the virus in North America would not be complete without mention of the rabbit tick, *Haemaphysalis leporis-palustris*. This tick, because of its habits, its host relationships, its wide natural range, and its evident adaptability to survival under a variety of habitat conditions, is the one indigenous North American tick, among the several known to be actual or potential carriers of spotted fever virus, that stands out conspicuously as a possible agent for the transportation of the virus over long distances and its subsequent successful establishment in the local fauna. Thus far, however, our observations of this tick in relation to long distance virus dispersal have not been sufficiently extensive to justify a definite statement.

If spotted fever virus has not become established in the central and eastern states by the transportation of infected ticks from the West, then how may its occurrence in these regions be explained? As far as our present knowledge of typhus-like diseases, and of Rocky Mountain spotted fever in particular, permits us to judge, there seems but one other tenable possibility, namely, that spotted fever virus may have been endemic in nature for an indefinite period in at least some parts of the sections of the country concerned. That it was so resident in certain of the far eastern states for some years, at least, prior to its definitely proved recognition in 1930, is too patent to need argument. In fact, there is now no logical reason to question LaBier's diagnosis as spotted fever of a case of typhus-like infection that occurred near Terre Haute, Indiana, in 1925, and there is some probability that infections in southern New York state in 1912 and 1913, that were considered Rocky Mountain spotted fever, were correctly diagnosed.

This possibility of long residence of the virus in parts of the country beyond the range of *D. andersoni* involves still another, namely, that in many localities both within and outside the Rocky Mountain region spotted fever virus may be resident in nature in a low-grade phase that does not produce frank recognizable infections, and that under suitable stimulus such strains of virus may sooner or later assume an increasing virulence and become capable of causing clinically recognizable symptoms. (The converse should be equally probable.) For the past twelve years this low-grade type of

3. Litterer, W.: Rocky Mountain Spotted Fever (Eastern Type) in Southern States; Report of 6 Cases in Tennessee. South. M. J., 26:407-415, May, 1933.

4. Badger, L. F.: Rocky Mountain Spotted Fever; Susceptibility of Dog and Sheep to Virus. Pub. Health Rep., 48:791-795, July 7, 1933.

5. Parker, R. R.: Transmission of Rocky Mountain Spotted Fever by the Rabbit Tick, *Haemaphysalis leporis-palustris*. Packard, Am. J. Trop. Med., 3:39-45, Jan., 1923.

what appears to be spotted fever virus is known to have been resident in the wood tick population of the east side of the Bitterroot valley. Furthermore, studies made by the writer have shown that an apparently identical virus is quite consistently present in the rabbit tick, *H. leporis-palustris*, which is widespread within the United States and in certain other parts of North America. This is true even on the west side of the Bitterroot valley, where it frequents in great numbers some of the same species of spotted fever-susceptible host animals as does the Rocky Mountain wood tick. The former tick does not bite man, but occurs in abundance on most species of rabbits and many species of ground-frequenting birds.

I have written several times of the possible fundamental relationship of the rabbit tick to the natural maintenance and distribution of spotted fever virus in this country. It is not a direct agent of infection in man. With reference to the potentialities of the transmission of spotted fever virus in nature by this tick, I wrote as follows in 1923:⁶ "It is, furthermore, probable that (due to this tick) the fever may exist in the rabbit population in localities in which human cases have not been known and also that it may be far more generally distributed among the rodents in the northwestern states, especially rabbits, than the (present) known distribution of human cases would indicate." I would now amend this statement to include all parts of North America in which this tick occurs.

The Hamilton Laboratory has been interested for some time in the possible value of this common, widespread, and very abundant tick as an index for determining just how widely spotted fever virus is actually distributed in nature in North America. During the past three years many thousands of rabbit ticks from Minnesota have been tested in cooperation with Dr. R. G. Green, of the University of Minnesota Medical School. Using an average of about a hundred ticks to each test, it has been demonstrated that more than half of the lots tested have contained ticks which, when injected into guinea pigs, have caused reactions that it seems impossible to interpret in any other way than as indicative of the presence of low-grade spotted fever virus. Just recently we have obtained similar results with rabbit ticks collected north of The Pas, Manitoba, Canada, several hundred miles

north of any known occurrence of spotted fever in man. The results of these tests, the only ones thus far made beyond the northern Rocky Mountain region, are very suggestive, and studies of this tick will be extended to other parts of North America as rapidly as possible.

If the data already secured are proved to be of face value, it becomes quite evident that spotted fever virus may have been resident for an indefinite period in the rabbit tick, or perhaps even in other ticks, in many sections of the United States and North America within which infection in man has not been reported. Under these conditions the transfer of the virus from the rabbit tick to certain other ticks that also frequent rabbits and bite man as well would be an ever present possibility. Several such ticks, which are proved potential carriers of spotted fever virus, occur in parts of the United States not occupied by *D. andersoni* (Parker, Philip, and Jellison). In fact, one or more proved or potential tick carriers to man is present in every state.

The answer to the question whether or not there has been a recent widespread dispersal of spotted fever virus in North America may later prove to be further complicated by the recent studies of Parker and Davis,^{7,8} which have shown that the viruses of Rocky Mountain spotted fever and exanthematic typhus of Sao Paulo, Brazil, are quite closely related (these results have been paralleled by Dyer⁹ and Monteiro¹⁰) and those of Badger,¹¹ which have indicated that there is a reciprocal cross-immunity between Rocky Mountain spotted fever and bouton-neuse fever of the Mediterranean countries. The significance of the evident close relationship between these three viruses is still to be determined, but it is likely that the increasing volume of research on Rocky Mountain spotted fever and other typhus-like diseases both in this country and in other parts of the world will eventually clarify in some measure many points of their bionomics which are now obscure.

7. Parker, R. R. and Davis, G. E.: Protective Value of Convalescent Sera of Sao Paulo Exanthematic Typhus Against Virus of Rocky Mountain Spotted Fever. Pub. Health Rep., 48:501-507, May 12, 1933; Further Studies on Relationship of Viruses of Rocky Mountain Spotted Fever and Sao Paulo Exanthematic Typhus. Pub. Health Rep., 48:839-843, July 21, 1933.

8. Davis, G. E. and Parker, R. R.: Additional Studies on Relationship of Viruses of Rocky Mountain Spotted Fever and Sao Paulo Exanthematic Typhus. Pub. Health Rep., 48:1006-1011, Aug. 18, 1933.

9. Dyer, R. E.: Relationship Between Rocky Mountain Spotted Fever and "Exanthematic Typhus of Sao Paulo." Pub. Health Rep., 48:521-522, May 19, 1933.

10. Monteiro, J. L.: Typho exanthematico de S. Paulo e suas relacoes com a febre maculosa das montanhas rochosas, a luz das provas de imunidade cruzada. Bras. Med., 437, June, 1933.

11. Badger, L. F.: Rocky Mountain Spotted Fever and Boutonneuse Fever; Study of Their Immunological Relationship. Pub. Health Rep., 48:507, May 12, 1933.

6. Parker, R. R., Philip, C. B. and Jellison, W. L.: Rocky Mountain Spotted Fever; Potentialities of Tick Transmission in Relation to Geographical Occurrence in the United States. Am. J. Trop. Med., 13:341-379, July, 1933.

SURGICAL SHOCK*

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For many years the subject of surgical shock has been a battleground between clinicians and physiologists, and many medical meetings have been enlivened by virulent arguments on the subject. I propose in this lecture to avoid as far as possible all controversial material and to deal merely with well established facts. This of necessity means that some uncertain matters will be entirely ignored, for which I crave your indulgence.

DEFINITION

I propose to discuss here shock in its broadest sense, not only that occurring following operations, but also after trauma and certain definite toxic and physical injuries. In this sense shock may be defined as a failure of the circulation. This failure is evidenced mainly by a fall in blood pressure and that is the common criterion by which we decide whether the patient is in shock or not. The other well known clinical symptoms of pallor or cyanosis, lividity, faintness, weakness and air hunger need not be more than casually mentioned, except to note the fact that collapse following hemorrhage is of necessity included in our definition as will be seen later. Internal hemorrhage or loss of circulating fluid to the tissues will explain many varieties of shock.

A rapid pulse has often been considered a good index of shock. However, we have recently noted a great many cases of very profound shock accompanied by a normal pulse or even bradycardia.¹ For these reasons we will confine our clinical index to a consideration of the blood pressure. Of 199 major operations at the Billings Hospital, 15 per cent show a fall of blood pressure to shock level. One-quarter of these failed to show a rise in pulse rate over 100 k.m.

The mechanics of circulatory failure (blood pressure fall) may be reduced to rather simple terms. There are but three important factors to consider.

1. Peripheral. A capillary and arteriolar dilatation will, of course, bring about a fall in peripheral resistance and hence a drop in pressure. This factor is largely dependent in most cases on the tone of the autonomic and sympathetic nervous systems and may occur as a reflex phenomenon.

2. Cardiac failure. If the engine stops or falters, quite naturally the pressure will correspondingly drop. Strange to say, however, in most of the conditions with which the surgeon has to deal the heart itself is not at fault.

3. Loss of circulating fluid. Blood pressure falls from external hemorrhage are an obvious matter. However, blood pressure falls from multiple internal capillary hemorrhages following trauma have only recently been recognized. Furthermore, it is quite possible for plasma to leak into the tissues under certain stimuli and cause a corresponding loss in circulating fluids. Both of these phenomena are of recent discovery and will be discussed in detail later.

PSYCHIC SHOCK

Sudden emotional stimuli, such as fear, the sight of blood or the sight of repulsive or nauseating material, are well known to produce collapse and fainting. This collapse has been studied by a number of workers. It is not clearly understood. It is obviously based largely on a cardiac effect as the recent experiments call attention to the profound fall of blood pressure and the absence of any capillary dilatation to account for it. The treatment of such a condition must first be recognized to be unnecessary in most cases as death or a serious complication seldom ensues. The horizontal position is important to overcome the anemia of the brain and stimulants in most cases are unnecessary and it is especially unwise to give vasomotor stimulants. Most heart stimulants are not rapid enough in action to be important unless intravenously administered. One of the most striking characteristics of this type of shock is the marked bradycardia which almost invariably accompanies it.

NEUROGENIC SHOCK

Here one must tread cautiously, as many of the worst battles have been fought on this subject, especially concerning Crile's² theory. Neurogenic shock may be divided into three subheads. First, direct. According to that theory a too great flow of afferent stimuli will cause exhaustion of the reflex motor apparatus and a cessation of normal efferent stimuli which maintain the circulation. Second, the neuroadrenal mechanism. It has been postulated that the adrenals may be worn out by the too great stimulation and fail to produce the adrenalin necessary to the maintenance of vasomotor tone. The second of these may to my mind be dismissed in a few words. How may the adrena-

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1. Livingstone, H. M. et al: Profound Blood Pressure Fall with Bradycardia; Normal Pulse Rate in Surgical Procedures. Surg., Gynec. & Obst., 56:917-925, May, 1933.

2. Crile, G. W. and Lower, W. E.: Anoci-association. W. B. Saunders Co., Philadelphia and London, 1915.

lin be exhausted as Crile has postulated by overwork, when it is well known that there is no preliminary period of a rise in blood pressure due to overactivity of the adrenals? This simple fact to my mind disposes of the matter entirely.

The very existence of neurogenic shock depends solely on the answer to the question of whether the prolonged stimulation of a sensory nerve will bring about fall in blood pressure. There has been a curious disagreement as to the answer of this simple question. Earlier workers appeared to believe that the answer was "yes." Today, however, the work of Mann³ and practically all recent workers have shown that the fall in blood pressure, if any produced, by stimulation of afferent nerves is very slight and that a rise is a more likely response. It seems, therefore, that the entire matter of a neurogenic shock is rapidly assuming less and less proportions, and, although its existence cannot be denied, it probably is not important in most cases.

A curious bypath into which this leads us is the matter of trauma to the central nervous system. Blalock⁴ has shown that trauma to the central nervous system must be of an extreme grade in order to produce surgical shock. Cushing, quoted by Bird,⁵ very early made the observation that in cranial surgery the blood pressure rapidly fell on account of the frequency of uncontrollable hemorrhage, but that it always returned to normal when the circulating blood was replaced by transfusion and today this observation has been confirmed by practically every neurologic surgeon in the world.

Nevertheless, there occur certain cases in which one is at a loss to account for the sudden blood pressure fall on any other basis than a reflex nervous one. For example, the occasional collapse on puncturing or incising the pleura or peritoneum must almost certainly be of this type. Furthermore, it is not infrequent during the course of abdominal operations to have a sudden collapse, independent of exhaustion or anoxemia. Probably many of these are of neurogenic origin and it is interesting to note the resemblance of this type to that of a psychic faint. One should, however, be hesitant of making such a diagnosis until other possibilities are exhausted.

Treatment here is ephedrine or adrenalin, whereas in other forms fluids or more oxygen are indicated.

ANOXEMIA

This factor is a potent one in the course of anesthesia and may crop up from tracheal obstruction and other causes. Cannon⁶ believes that most of the blood pressure collapses during anesthesia are due to the faulty supply of oxygen to the tissues. Blalock⁷ has shown that a slight decrease of anoxemia produces increase in the cardiac output together with a slight acidosis. However, if the anoxemia is of a high grade or is prolonged, profound falls in blood pressure occur. More and more are we beginning to attribute collapse during operative procedures to the factor of anoxemia. It is well known that most anesthetics act in part at least by inhibiting oxidation and producing tissue anoxemia.

In the Billings Hospital, where we make frequent blood pressure observations and plot curves of all operative procedures, there are many cases such as the one illustrated where it appears difficult to explain the sudden circulatory failure on any other basis. Such cases are often promptly restored by the administration of oxygen in higher concentrations but in others the fall is prolonged and oxygen administration has but little effect. Probably the greater degree of shock in more prolonged operations is largely due to this factor and it is one which the anesthetist should ever keep in mind.

ACAPNIA

Acapnia is a term coined by Vandell Henderson⁸ to describe a peculiar condition brought about by hyperventilation of the lungs. In brief, the point is that Henderson showed that the normal stimulus to respiration was not lack of oxygen but was the presence of carbon dioxide in the blood. Therefore, anoxemia in the absence of carbon dioxide would not stir up attempts to breathe. Having been present in many of these experiments as a student assistant in Henderson's laboratory, I can vouch most whole-heartedly for the reality of this condition. Several very near fatalities occurred in normal individuals experimented upon who were deprived of the usual amounts of carbon dioxide either by hyperventilation of the lung or other technic. The result of acapnia is a cessation of respiration followed in a short time by collapse and fainting. While in most conditions such a contretemps would never occur, one must bear it in mind in the administration of anesthetics, and *one should never have a patient rebreathe from the anesthetic bag gases*

3. Mann, F. C.: The Peripheral Origin of Surgical Shock. Johns Hopkins Hosp. Bull., 25:205-212, 1914.

4. Blalock, A. and Bradburn, H. B.: Trauma to the Central Nervous System. Arch. Surg., 19:725-734, Oct., 1929.

5. Bird, C. E.: Transfusions in Acute Loss of Blood. Arch. Surg., 18:1646-1658, April, 1929.

6. Cannon, W. B.: Traumatic Shock. D. Appleton and Co., New York and London, 1923.

7. Blalock, A.: The Effect of Ether Anesthesia on the Cardiac Output. Arch. Surg., 14:732-751, March, 1927.

8. Henderson, Y.: Shock and Acapnia. Am. J. Physiol., 46:533, Aug., 1918.

from which the carbon dioxide has been absorbed. Of course, the treatment is the administration of strong carbon dioxide and this is usually present in tanks in hospitals today.

Shock and collapse from hyperventilation may occur rarely, following painful injuries or in hysterical women where intentional lack of breathing is not uncommon. It is important to bear the condition in mind as a proper diagnosis may save the life of the patient in such cases.

FAT EMBOLISM

Fat embolism is familiar to all of us as a complication of extensive bone injury. The pathology consists of the accumulation of multiple tiny fat droplets from the bone marrow in the capillaries of the lung with consequent obstruction of the pulmonary circulation and the rapid onset of shock and collapse. Bissell⁹ showed that common mild or moderate degrees of fat embolism were found, following routine surgical procedures or injuries in the soft tissues. For that reason such a diagnosis must be kept in mind in individuals in whom no other kind of surgical shock can be accounted for. The diagnosis once suspected may be made rapidly by an estimation of the fat in the blood.

Quite recently Herrmann¹⁰ has achieved very striking success in the treatment of experimental fat embolism by the venous injection of a dextrose and alcohol solution and in a few cases, where it has been suspected, achieved clinical cures. The solution he uses consists of three parts of 95 per cent alcohol and seven parts of 25 per cent dextrose solution. The amounts used in animals have been about 5 cc. per kilo body weight, which is only about one-fourth of the lethal dose. The results in animals have been so striking with a prompt clearance of fat from the lung that I regard the treatment as very promising.

AIR EMBOLISM

Air embolism occurs with the opening of a vein, generally about the neck or head, with a consequence of suction of air into the circulatory system by the respiratory motions. The curious results observed in human beings are difficult to account for when one attempts experimental work on the subject. Death apparently ensues from the filling of the right heart with froth, but the tolerance in a dog, for example, is enormous. Harkins¹¹, working in our laboratory, has shown that a dog will tolerate

up to 10 cc. per kilo of body weight, a perfectly astounding amount of air, injected intravenously. This confirms the work of many other observers. It seems impossible that on the human scale the equivalent amount of air could ever be aspirated into a vein but, nevertheless, undoubted cases of death from air embolism in man during operations on the neck have occurred.

I remember as an interne that a foolhardy colleague, knowing of these facts, deliberately allowed no more than 2 or 3 cc. of air to flow into the vein in his patient receiving intravenous clysis, and the result was a transient hemiplegia which taught him a much needed lesson. I have no doubt that in some cases air may flow through dilated capillaries of the lung and hence reach the general circulation and in the brain, with its system of end-arteries, might easily give such symptoms as occurred in this case. The diagnosis of the condition may be made by auscultation of the heart, which I once had the opportunity of hearing, a "shushing" sound never to be forgotten. However, in this case, as in most others, death occurs so rapidly that diagnosis is impossible and of little importance. If, however, it is made, the obvious treatment is to aspirate the heart with a large needle and to give the strongest possible stimulants.

TOURNIQUET RELEASE

Blood pressure falls from the removal of a tourniquet and the pouring back of the circulation of toxic matter have been reported by some observers and denied with great violence by others. A great many years ago I reported that such a condition took place and discussed it, believing it to be a toxic manifestation from the stagnant blood¹². Shortly thereafter Phemister was unable to confirm the work and was inclined to doubt its existence. More recently undoubted cases of such a phenomenon have occurred, but it remained for Churchill to explain the reason. Blood pressure falls, he has shown, following the removal of a tourniquet may occur and they are due to a compensatory dilatation of the blood vessels in the limb upon which the tourniquet had been, and the mechanics of the condition are easily explained as the vascular bed is much enlarged with a consequent fall in the general pressure.

PORTAL VEIN OBSTRUCTION

Quite frequently during the course of operations in the upper abdomen, especially on the bile tracts, the liver is rotated to such an extent that the portal

9. Bissell, W. W.: Pulmonary Fat Embolism. *Surg., Gynec. & Obst.*, 25:8, July, 1917.

10. Herrmann, L. G.: Effect of Dextrose Alcohol Mixture Upon Pulmonary Fat Embolism. *Proc. Soc. Exp. Biol. & Med.*, 30:558-559, Jan., 1933.

11. Harkins, H. N. and Harmon, P. H.: Embolism by Air and Oxygen. *Proc. Soc. Exp. Biol. and Med.*, in press.

12. Andrews, E.: Water Metabolism. *Arch. Int. Med.*, 37:82-87, Jan., 1926.

vein will be completely obstructed. This will bring a damming back of the portal circulation and consequent "bleeding to death into the abdominal veins." It has been shown experimentally that temporary clamping of the portal vein will produce a sudden marked fall in the blood pressure and Blalock's experiments clearly demonstrate that this is due to the loss of circulating media into the portal system. This side-line in collapse studies is well to bear in mind in surgery on the bile tracts.

TRAUMATIZED BLOOD

A curious phenomenon has been investigated rather thoroughly by Phemister recently. I refer to the fact that blood withdrawn from the body and shaken acquires certain toxic properties. Phemister¹³ in elaborate studies failed to demonstrate any toxic principle due to leaking or ordinary chemical changes. Nevertheless, the fact remains that such blood reinjected into an animal will cause a profound fall in blood pressure and one must keep this point in mind in doing blood transfusions. The recent work of Wu¹⁴ on egg albumen has demonstrated that the protein molecules in solution occur in larger aggregates following clumping and there is a consequent rise in the viscosity of a solution of protein brought about by shaking until finally coagulation can be made to occur. I have tried to demonstrate this same phenomenon in blood also and failed. We used the large ultramicroscope and tried to count the protein aggregates in the field but were unable to overcome the technical difficulties.

TOXIC SHOCK

Most toxemias have an onset sufficiently gradual so that they do not fall into the shock group. However, certain cases occur in which there is with almost anaphylactoid suddenness fallen pressure and consequent collapse. While some of these have been explained, others still remain a mystery. The acute toxemia arising from the use of new rubber tubing in intravenous injections is now familiar to you all and, although the toxic principle has never been isolated, we know that, if the tubing is boiled in alkali, the poison may be removed.

Into this group also falls the dextrose shock and this again is an unsolved problem. In 1922 I devoted a great deal of study to the matter and was unable to ascertain what the toxic principle was in certain types of dextrose furnished for intravenous use. Some specimens of toxic dextrose appeared to

be quite comparable to the nontoxic varieties, containing no acid, having the same pH, containing no aldehydes nor the remains of sulphates used in the preparation. Even today the preparation of dextrose for intravenous use is largely empirical and occasional shock reactions still occur. However, the use of buffer solutions, where large amounts of any material have to be injected intravenously, has markedly lowered the incidence of these untoward advents.

In this connection one should not forget the matter of idiosyncrasy to cocaine, novocaine or other local anesthetics. Also simple overdosage of these may inadvertently be administered. Here the collapse may be dramatically sudden and closely resemble shock. Antidotes are powerful vasoconstrictors and must be given promptly.

In spinal anesthesia this factor may be important in many cases, but equally must one consider the vasodilating effect of blocking the cord. This lowers the peripheral resistance and hence the blood pressure. Fortunately the therapy is the same in both cases.

The general question of shock arising from toxins originating in injured tissues can today be answered with almost a categorical negative. It has been the experience of practically all observers that damaged tissues contain no more toxic substances than normal tissues do and these tissue extractions, having failed to produce experimental shock even in the matter of burns, the experience has largely been negative. Earlier reports of finding of histamine-like derivatives, acetylcholine or various other toxic amines have as a general thing not been confirmed and today we feel fairly confident that the fallen blood pressure and collapse after mechanical or thermal injuries is rather definitely not due to absorption of poisons from the injured areas.

LOSS OF CIRCULATING FLUIDS

This factor is today recognized almost universally as the overwhelmingly important one in surgical shock. The long list of contributions of Blalock and Phemister in this field cannot be reviewed here, but their conclusions are so definite and have received such definite confirmation that one cannot dodge the issue. The evidence has been summarized by Blalock.¹⁵ They traumatized limbs or portions of the body which have in dogs produced surgical shock and have demonstrated very clearly that there is not only capillary hemorrhage but also leaking of

13. Phemister, D. B. and Handy, L.: Vascular Properties of Traumatized and Laked Blood. *J. Physiol.*, 64:155-173, Nov., 1927.

14. Wu, H. and Ling, S. M.: Studies on Denaturation of Proteins; Denaturalization of Hemoglobin. *Chinese J. Physiol.*, 1:219-234, April, 1927.

15. Blalock, A.: Acute Circulatory Failure as Exemplified by Shock and Hemorrhage. *Proc. Int. Med.*, Chicago, 9:405-412, Nov. 15, 1933.

blood plasma into the injured regions in quantities which are sufficient to deplete the circulation to the shock level. For instance, if a dog of a certain weight is traumatized, it can be demonstrated that the injured region by edema and hemorrhage and fluid leakage into the tissues has acquired sufficient extra weight which, if translated into terms of blood serum, would produce an equivalent amount of shock if withdrawn from the veins in a similar animal. The enormous literature on this subject in recent years need not be reviewed here except to state these conclusions.

However, certain other important corollaries must be mentioned. In shock produced by this means there is a marked concentration of the blood as evidenced by a rise in the cellular elements. The administration of fluids alone in such cases simply speeds up the vicious process, the blood is diluted and the exudate in the injured region is increased and it can be definitely shown that the administration of normal salt solution alone is not only of no avail but is positively detrimental. In other words, the circulatory bed lacks not only water and salt but also protein and for that reason corrective measures must be taken to maintain the viscosity of the blood. While acacia and other such substances may have a certain merit, it is obvious that what the patient needs is not water but blood, and blood transfusion is the all important life-saving measure under these circumstances.

The recent publications of Underhill¹⁶ have demonstrated a similar phenomenon in burns, i.e., that there is a loss of blood serum both by weeping of the surfaces and by edema in the burned region which is amply sufficient to account for the fall in blood pressure. More recently Harkins¹⁷ has shown that this loss of fluid in burns takes place very rapidly and can account for the so-called "primary shock." Knowledge of these facts has enabled surgeons to save the life of many who would previously have succumbed to their burns.

CONCLUSION

I hope I have been able to demonstrate the importance of the differential diagnosis between the various varieties of surgical shock. This is clearly of great importance in view of the fact that the treatment for the various sorts is quite specific and if applied to the wrong kind, may be definitely detrimental. Outside of the special varieties dis-

cussed, we may come back to the three main factors which I mentioned at the beginning of my lecture.

1. Fall in peripheral resistance. It is obvious that here vasoconstrictor drugs are life-saving measures and cardiac stimulants are of value only indirectly.

2. Cardiac shock demands treatment by heart stimulants and it is clear here, again, that the administration of enormous amounts of fluid would simply overburden the already overtaxed myocardium.

3. Shock due to loss of circulating media demands treatment by replacing not only fluid but blood serum and it is again clear that stimulants, either vasoconstrictor or cardiac in action, can have but slight effect in such conditions.

THE AIRWAY IN ASPHYXIA *

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It seems at present that, after many years of antagonism and self-assumed superiority toward lay groups interested in and making definite progress in the treatment of asphyxia, the medical profession has at last recognized its field in this important work. We find societies for the prevention and treatment of asphyxial deaths being formed in New York and Paris during the past two years.

In order to progress in this work, we must recognize the fact that practitioners of medicine do not have the trained teams, the means of rapid transportation or the portable apparatus that lay bodies, such as a fire department, have. These lay bodies with their trained teams and available rapid transportation are the ones definitely designed to care for asphyxial emergencies at swimming resorts, at industrial plants, or it might be stated in any case where there is not time to get the patient to a hospital and obtain a physician's care. Likewise, the asphyxial emergencies in the hospital should be taken care of by physicians.

While this paper is concerned primarily with the airway in asphyxia, I am going to diverge a little and discuss briefly the theory of the mechanism of asphyxiation. Henderson of Yale has shown that, when there is oxygen shortage in the body, there is a lowering of the sensitivity of the respiratory center in the brain. Once this occurs, the only way it can be stimulated is to increase the concentration of the respiratory stimulant, carbon dioxide, in the air or oxygen mixture inflated or inspired into the lungs.

16. Underhill, F. P.: Significance of Anhydremia in Extensive Superficial Burns. *J. A. M. A.*, 95:852-857, Sept. 20, 1930.

17. Harkins, H. N.: Shift of Body Fluids in Severe Burns. *Proc. Soc. Exp. Biol. & Med.*, 31:994-995, May, 1934.

* Read before a meeting of Snohomish County Medical Society, Everett, Wash., May, 1934.

While this is the accepted theory, whether you accept it or not does not deter from the paramount issue, that the airway must be cleared in asphyxia, and that it should be cleared at once, disregarding the cause at the moment. Whether you are dealing with a new-born infant, a child with a foreign body or an adult with a carcinoma, if they are asphyxiated, the first procedure is to clear the airway.

In the new-born infant asphyxia may be due to inhaled amniotic fluid, to narcosis, to cerebral ischemia from shock or to a flaccid airway secondary to cerebral hemorrhage or trauma. Mathieu and Holman¹ state that a recital of the methods of resuscitation of the new-born in vogue at present sounds like a chapter from *Mother India*; further, that nowhere in present day medicine can one see such antiquated, unscientific and haphazard procedures as those practiced in the attempt to induce the new-born infant to take its first breath.

In asphyxia neonatorum the respiratory center is depressed and it is necessary to supply it with carbon dioxide. First, we must be certain that the airway is cleared. This is best accomplished with a tracheal catheter, using a No. 12 French woven catheter, with a glass saliva trap. The catheter is easily introduced after a little practice. The head is extended over the edge of the table and the index finger of the right hand passed down, elevating the tongue until the epiglottis, and just below this the slit of the larynx, can be felt. The patency of the catheter is tested by drawing sterile water through it.

The catheter is introduced with the left hand passing along the index finger of the right hand as a guide into the larynx. If the catheter passes into the esophagus, it can be easily felt by advancing the tip of the finger into the mouth of the esophagus posterior to the larynx. After entering the larynx the catheter is inserted about 3 cm. farther and suction applied to remove mucus or amniotic fluid from the upper trachea. The catheter is then removed and cleared by blowing through it, then reinserted and artificial respiration started.

Henderson² advised the use of 5 per cent carbon dioxide in oxygen for resuscitation. Expired air contains 4.38 per cent carbon dioxide, sufficient to stimulate the respiratory center of the asphyxiated child. The expired air from the mouth of the operator is forced through the glass trap and catheter at a rate of forty inflations per minute. Very little force is used, not more than can be felt on a wet finger tip

four inches from the mouth or about the force used in blowing smoke rings. This is continued until regular respiration is started, or until the heart ceases to beat.

The use of the gas bag and small face mask is not as reliable as the catheter in the infant because the tissues are soft and compressible, making it possible for the epiglottis and tongue to collapse over the larynx, forcing the gas into the stomach. This certainly does not happen in every case but it is possible. In any event, the tracheal catheter with suction should be used first to clear mucous plugs and amniotic fluid from the trachea.

In the cases caused by temporary obstruction, as from anesthetic or from fluid in the airway, the procedure does not need to be repeated. In others it may have to be repeated or the catheter may have to be left in place until a diagnosis can be made. In those cases with a flaccid airway, which is usually due to a bulbar lesion, it may be necessary to elevate the feet and instruct the nurse in the use of a water suction apparatus to be used in the mouth and pharynx. As the child gets older most of the attacks of asphyxia come on during sleep. For these attacks the mother can be instructed to pull the tongue out and elevate it and soft tissues that are obstructing the pharynx.

Practically all of these cases that survive the first few weeks recover before the third year, but unfortunately many of them are imbeciles. It is well to point out here that Henderson claims that prolonged asphyxia is a cause of imbecility in children and that a Parkinsonian syndrome may follow it in adults, so that our responsibility goes farther than simply saving an asphyxiated individual after he becomes moribund. We should relieve the mild forms as soon as possible and prevent asphyxiation whenever possible.

In small infants there is a lack of coordination, so that if the nose is obstructed, they will not open their mouths and breathe, but will suck their lips in and become asphyxiated. Children may be born with congenital occlusion of the posterior choanae of the nose, with complete obstruction to nasal breathing. If they can be kept breathing for a few days they soon learn to breathe through their mouths. At first the catheter is used as in other forms of asphyxia until a diagnosis can be made. Once made, an airway should be secured through mouth, either by inserting a rubber tube designed by Blair³ which ties with tapes around the neck,

1. Mathieu, A. and Holman, A.: *Resuscitation of Asphyxiated New-born*. J. A. M. A., 92:1917-1918, June 8, 1929.

2. Henderson, Y.: *Prevention and Treatment of Asphyxia in New-born*. J. A. M. A., 90:583-586, Feb. 25, 1928.

3. Blair, V. P. and Brown, J. B.: *Mirault Operation for Single Harelip*. Surg., Gynec. & Obst., 51:81-98, July, 1930.

or by suturing the edge of the lower lip downward to the chin.

The same complication may be encountered after closure of a hare lip or during the process of strapping with adhesive preliminary to closure. On account of the danger of the Blair tube interfering with the closure in postoperative cases, suturing of the lip to the chin is the best procedure in this group. During preliminary strapping the tube will suffice.

In older children two of the commonest causes of asphyxiation are diphtheria and the inhalation of foreign bodies. In diphtheria I believe that tracheotomy affords the best chance of getting good results in a general hospital. Intubation with O'Dwyer tubes gives relief in that group of cases in which there is a piece of membrane acting as a valve in the larynx and trachea. The point to be remembered is that the tube may be coughed up at any time and there may not be time to reinsert it. The tracheotomy should be done early, when there is plenty of time to do it properly. These cases are not allowed in the regular surgery, so that lighting and so forth will be none too good at the best.

I have had very little success in the removal of diphtheritic crusts or membranes through the bronchoscope. My experience has been that, where the membrane could be removed, it had practically separated from the wall, the patients were improving clinically, and the membrane would soon be coughed up. In the other group that are not improving, the membrane is so finely adherent that you have to literally scrape it off. As a last resort I have used a digestive ferment in solution to dissolve the crusting, but mention it simply as an experiment, as the patient died, although not of an asphyxial death. The digestive ferments do not attack living tissue, so the procedure should be harmless. I intend to do some animal experimentation and later use the solution on some cases of bronchiectasis.

Asphyxiation occurs when rounded foreign bodies, such as beans, whole peanuts and small round toys, are inhaled into the trachea. There is a widespread idea that only one man in a large area should do bronchoscopy. With this I have never agreed. There should be someone in every community who can expose the larynx and insert a bronchoscope in less than three minutes, even if he is not expert in every line of bronchoscopy. In the cases mentioned above a life can be saved by pushing the foreign body down beyond the bifurcation of the trachea, if a man does not feel expert enough to remove it. It is not necessary even to pass a bronchoscope, for if

the larynx can be exposed, two firm catheters can be sewed or vulcanized together and passed down to dislodge the foreign body. Remember, too, that a tracheotomy can be done and the catheter passed through the wound, also that more than a few foreign bodies have been coughed out through the tracheotomy wound spontaneously. This procedure is mentioned only as a temporary measure to be used in extreme cases until the foreign body can be removed.

I am not going into the technic of tracheotomy but wish to emphasize a few of the most important points. As mentioned before, it is always well to do a tracheotomy early, as prolonged, even mild asphyxia may produce permanent symptoms in the patient, and the chances for a good result are much better in a well planned than in an emergency tracheotomy. Remember to keep the incision in the midline and low. Any one can locate the thyroid cartilage, commonly called the Adam's apple. With this fixed between the middle finger and thumb of the left hand and the index finger acting as a guide to the midline, remember that there is one cartilage, the cricoid below this, to be avoided if possible. Yet we see tracheotomies done directly through the thyroid cartilage. This leads to sloughing of the cartilage and stricture of the larynx later. Stop all bleeding before opening the trachea, as the blood will be sucked in rapidly once the trachea is opened and will add to the existing respiratory obstruction. If the isthmus of the thyroid is in the field, do not hesitate to remove it if the trachea cannot be exposed low enough by pushing it downward. Lastly, fix the trachea with sharp hooks before making the incision as it will rotate under the pressure of the scalpel and when you are through you will find the incision on the side of the trachea. Without fixation and elevation there is a possibility of going through the tracheal wall unexpectedly and incising the posterior wall.

In asphyxia from poisonous gases, drowning and during anesthesia there is a pushing downward and backward of the tongue and soft tissues. All that is necessary here is to insert some kind of a non-collapsible tube as far as the larynx or better still into the trachea. A small bronchoscope or the Flagg type of tube can be used. It is not necessary to use a prying motion, simply lift up on the soft tissue. If a patient is asphyxiated, he is flaccid and much easier to work on than a conscious patient. We must remember in all these conditions that, if the patient is asphyxiated, the threshold of stimulation of the respiratory center is lowered, and the con-

centration of the carbon dioxide of the inspired air must be increased.

Resulting from direct pressure in the trachea and larynx, in adults asphyxiation occurs more often from malignancies of the larynx and thyroid than from any other cause. Here the symptoms of asphyxiation are a definite aid in diagnosis. Given a lesion in the larynx or in the thyroid producing embarrassment to respiration, whether it be from direct pressure or from fixation of the vocal cords, the chances are better than ninety per cent that the lesion is malignant. I have never seen tuberculosis of the larynx cause embarrassment enough to require tracheotomy, although it is done at times with the idea of resting the larynx. Luetic lesions about the cords never cause obstruction, although gummata of the laryngeal cartilages may rarely do so. In doing a tracheotomy for malignant lesions or anywhere that the tube may be expected to be kept in place for a long time, it is well to remove a small piece of the tracheal rings, as the tube will fit better and the cartilages will eventually slough if this is not done.

CONCLUSIONS

1. In asphyxiation, regardless of the cause, the first procedure is to obtain a clear airway.
2. The respiratory center should be stimulated with an air or oxygen mixture, containing approximately 5 per cent carbon dioxide in asphyxia.
3. The medical profession should realize their place in the treatment of asphyxia and should be prepared to carry it out.

OPERABILITY OF CARCINOMA OF THE BREAST*

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Irrespective of the age of the individual, carcinoma should receive due clinical consideration when a tumor of the breast exists. Early carcinoma cannot be differentiated clinically from benign tumors of the breast. A tumor within the breast is highly suggestive of carcinoma, if there is overlying skin attachment. A rusty or blood-tinged discharge from the nipple, irrespective of whether a tumor is palpable, should lead to surgical investigation of the nature of the underlying cause. Pain is entirely absent or is of no diagnostic importance in early carcinoma of the breast. The presence of a tumor, skin attachment or a blood-tinged secretion from the nipple may be the earliest manifestations of car-

cinoma, and if a higher percentage operability early in the course of the disease is to be achieved, these findings must excite suspicion and provide cause for excision and biopsy of the lesion. The clinical signs of advanced cancer of the breast are well known; to wait for their appearance denies the patient the best prospects of cure. Cancer of the breast must be treated surgically before a clinical diagnosis of the disease is possible.

The American Society for the Control of Cancer has recently provided me with data pertaining to deaths from cancer. Their latest and most complete data are for the year 1930 for the continental registration area, which includes the District of Columbia but does not include Texas. Deaths from cancer of the breast comprised 9.5 per cent of the deaths from cancer in all organs, and in this situation it was responsible for 17 per cent of all the deaths from cancer in women. Early cancer of the breast is a curable disease, but to provide the maximum prospect of cure it is incumbent upon the patient to seek medical advice on the slightest provocation or suspicion that some abnormality exists in the breast. Procrastination by the physician when an abnormality exists should not be indulged in, for too often it allows an operable lesion of the breast to progress to inoperability before a diagnosis of malignant disease is entertained.

In general, the diagnosis of cancer of the breast is not usually made until the disease has advanced beyond the breast to the glandular structures, the bones, the liver or the lungs. That the disease is not recognized early in the majority of cases is indicated by an incidence of axillary glandular invasion by the disease in 70 per cent of the cases that are accepted for radical amputation of the breast. What the true inoperability of the disease actually is I do not know. However, in my experience in private surgical practice during the past four years, the inoperability of carcinoma has been 20 per cent, as manifested by conclusive clinical evidence of extension of the disease beyond the breast and the axillary glands.

The difficulties attending the early diagnosis of internal cancer, or particularly carcinoma of the gastrointestinal tract are great, for oftentimes such disease is well advanced before many symptoms and manifestations are sufficiently prominent to cause the patient to seek medical consultation. Then, too, the physician may logically but often illogically satisfy himself regarding the nature of the disturbances without adequate and thorough investigation of the probable cause of symptoms and

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manifestations which may be due to carcinoma. These difficulties need not exist in the early diagnosis of carcinoma of the breast. Carcinoma in this situation may properly be regarded as an external cancer, occurring in a glandular structure in front of the patient, accessible to her so that any abnormality may be seen or felt early. Likewise, the gland is readily accessible for clinical examination, and abnormalities of structure may be readily ascertained.

Considerable interest has been exhibited in recent years in the roentgen diagnosis of tumors of the breast. While this method of examination has contributed much of scientific interest, particularly as pertains to the roentgenologic manifestation of tumors, the method is not sufficiently accurate as a differential diagnostic procedure to justify placing complete reliance on the method to distinguish a benign tumor from a malignant tumor. Here, as elsewhere, the roentgen tube is not equipped for microscopic projection of the lesion. I wish to emphasize that in the absence of unmistakable clinical signs of carcinoma the true nature of a tumor of the breast can be ascertained only by its surgical removal and microscopic examination.

So far as the operability of carcinoma of the breast is concerned, quite definite statements may be made regarding the degree of advancement of the disease that may be accepted for radical amputation as a procedure curative in purpose. Radical amputation of the breast for curative purposes includes not only removal of all breast tissue, but wide removal of the skin overlying the tumor, complete dissection of the axilla, i. e., removal of all glands and gland-bearing structure, and the removal of both pectoral muscles. Any surgical procedure less radical for a truly operable carcinoma of the breast does not provide the maximum benefit that may be derived from surgical treatment. Operability denotes removability within the limits of radical amputation, or malignant disease confined as nearly as can be determined, to the breast or the breast and axillary glandular structures.

Very definite criteria of inoperability should be recognized, and these include all clinical manifestations of advancement of the disease beyond the breast tissue and axillary lymph nodes. Fixation of the tumor in the breast or the breast to the chest wall is usually indicative of invasion of the growth by direct extension to the muscles of the chest wall, particularly predisposing to early pleural involvement. Fixation of enlarged, definitely involved lymph nodes to the chest wall and to other axillary

structures almost always precludes complete removal of the involved axillary lymph nodes. Pain referred down the arm denotes not only pressure from such fixed axillary lymph nodes but oftentimes a direct invasion or inclusion of the brachial plexus in the massive nodal involvement. Edema of the arm often denotes occlusion by pressure or involvement of the axillary vein. On a number of occasions I have encountered most extensive invasion of the axillary vein, even to the inclusion within its lumen of tumor tissue. It is true that the axillary vein may be removed under such circumstances, and this I have done on a number of occasions without greater likelihood of undue postoperative edema, provided the cephalic vein has been preserved and the axillary vein is removed proximal to the point of entrance of the cephalic into the axillary vein.

Lymphatic glandular involvement beyond the confines of the axillary space usually indicates extension of the disease beyond surgical removability. Involvement of supraclavicular or cervical lymph nodes is often indicative of rather widespread dissemination of the disease and seldom should radical amputation of the breast be instituted where such cervical glandular involvement is present. In certain cases some question may exist regarding the advisability of radical cervical dissection with the wide removal of cervical lymphatics, and while exceptions exist, experience has proved that such procedures are usually not justifiable nor do they usually increase postoperative longevity.

Bilaterality, as simultaneous involvement of both breasts, is rare, is almost always metastatic in one breast from the other, and usually indicates a fulminating, high-grade type of malignancy. When the disease is confined to both breasts without clinical manifestations of extension beyond the breast or axillary lymph nodes, the indications for bilateral radical amputation may be quite clear, even so. However, extensive simultaneous bilaterality of the disease is usually not amenable to surgical treatment. Bilaterality in terms of development of carcinoma in the opposite breast some time subsequently is observed in about two per cent of the cases. I have seen such involvement of the opposite breast occur ten years or more after radical amputation of the breast originally involved.

Multiplicity of malignant lesions in a breast, so long as the disease has remained within the confines of the breast or the immediate regional glandular structures in the axilla, is not necessarily a contra-indication to radical amputation. Six years ago Caylor and I reported a case of bilateral multiplicity

where I performed a radical amputation of the left breast, and scattered throughout the breast tissues were eleven distinct nodules of adenocarcinoma, varying in size from three millimeters to one centimeter in diameter. Two years later I performed a radical amputation of the right breast in which there were thirty-three distinct nodules of adenocarcinoma scattered throughout the breast tissue.

Diffuse extensive invasion of the skin overlying the breast and beyond the breast with multiple cutaneous nodules suggests the acute inflammatory type of carcinoma, and is seldom treated successfully by radical amputation of the breast. Multiple cutaneous metastases usually recur most rapidly after operation. Pleural effusion incident to pleural or pulmonary metastases, clinical and roentgenologic evidence of metastasis to bones and remote organs, systemic contraindications, notably cardiac decompensation, advanced diabetes, senility, et cetera, preclude radical amputation of the breast as a curative procedure. Even though radical amputation may under all these conditions be entirely out of the question, the advisability of palliative simple amputation of the breast requires due consideration to rid the patient of an ugly, ulcerating breast, provided the breast is freely movable and a primary closure of the wound is possible, and the true intents and purposes of such proposed palliation are served.

Considerable controversy has arisen in recent years regarding the question of "surgery versus radiotherapy" in the treatment of carcinoma of the breast. Great credit is due the late Burton Lee and his associates who, among others, have made valuable contributions to the improvement and efficacy of radiotherapy in this particular disease. The results that have followed through radiation in the hands of these men are most encouraging. A careful analysis of cases seems to show that the greatest benefit from radiotherapy has been derived in those cases that are surgically inoperable and in those in which postoperative recurrences have developed. The results following radiotherapy in the strictly operable cases are not such that this method of treatment should be the sole method of treatment or replace radical amputation of the breast in this group of cases. Radiotherapy does not usually destroy malignant disease of the breast completely. The size of the growth and the demonstrable glandular involvement is often made to shrink very appreciably, following thorough radiation, either as applied from without or by interstitial radiation. Marked changes in the histology of the tissues

occur following radiation not only through actual destruction of cancer cells, but also through great increase in the amount of fibrous tissue, wherein marked fibrosis is produced, within which nests of malignant cells remain more or less dormant indefinitely. This does not produce cure by complete eradication of the disease, but represents a most efficacious control of the disease and retards its progress materially.

From a practical standpoint my experience has led me to adopt rather definite principles of management of carcinoma of the breast in relation to surgery and radiotherapy. In general, carcinoma of the breast as it is seen clinically may be classified under four groups: (1) those cases in which a tumor is present without any of the clinical manifestations of carcinoma, in which case removal of the tumor is necessary for diagnosis; (2) those cases in which clinical manifestations of carcinoma are present without palpable axillary glandular enlargement or evidence of metastases; (3) those cases in which enlarged, definitely involved axillary glands are present without clinical evidence of further metastatic involvement; and (4) those cases that are clinically inoperable.

In general, it may be stated that experience has proved that an operable lesion of the breast is best treated by radical amputation, and there is no substitute for such treatment. May radiotherapy be used advantageously in conjunction with radical amputation of the breast? Rather dogmatic answers to this question may be made. In the first group of cases, in which excision of the tumor is necessary to establish the diagnosis, radical amputation should immediately follow the frozen section diagnosis of a malignant lesion. With the disease confined to the breast it may be reasonably assumed that the surgical procedure has removed all of the disease and no occasion for radiotherapy exists. In the second group the same conclusions may be drawn with safety unless pathologic examination of the surgically removed specimen shows involvement of muscles or fascia adjacent to the breast, or involvement of axillary glands is demonstrated. No objection exists regarding the postoperative institution of radiation; however, considerable question exists that postoperative radiation in this group particularly enhances the good prospect of cure from radical amputation of the breast. In the third group of cases preoperative radiation directed externally or by interstitial radiation is highly advisable, to be followed by radical amputation of the breast in from four to six weeks, and the institution of post-

operative radiation after complete healing of the wound has occurred. The fourth group of cases may be considered candidates for radiation as the sole method of treatment except as in an occasional case palliative simple amputation may receive favorable consideration. Radiotherapy cannot replace surgical excision of the primary growth and its tributary lymphatics in the truly operable cases, but in those cases in which lymph nodes are involved radiotherapy tends to improve the end-results of operation and prevent or delay recurrence.

The prognosis after radical amputation of the breast is dependent upon many factors, of which the absence or presence of axillary glandular involvement is most important. Youth, lactation, ulceration and diffuse involvement of the breast are unfavorable to an optimistic prognosis. In terms of axillary involvement it may be stated in general that the prospects of cure are at least three times as great in the absence of axillary glandular involvement as it is in those cases in which the axillary glands are involved.

Extensive, mutilating operations outside of the true confines of operability, such as include removal of the clavicle or amputation of the arm, or a radical cervical dissection for the removal of involved cervical lymphatic structures, are not only unjustifiable but do not enhance the prospect of cure. From a surgical viewpoint the hope for a larger number and percentage of cures of cancer of the breast is dependent upon the performance of the radical operation to include removal of the breast, the pectoral muscles and all the lymphatic structures from the axilla early in the disease, and not in the employment of more radical procedures in advanced disease.

LARGE QUANTITIES OF FLUIDS INTRAVENOUSLY

PRINCIPLES AND PRACTICE FOR THEIR USE

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(Continued)

While the caloric needs of the patient may be met with dextrose, nutrition cannot be maintained indefinitely in this manner. So far as its use as a food is concerned, its chief value is its sparing effect on body protein, which would otherwise be burned to supply dextrose for calories, and for promoting the proper combustion of fat.

ACIDOSIS AND ALKALOSIS

Marked disturbances in the acid base balance of the blood are often successfully treated with in-

travenous solutions. One type of acidosis operates by way of an increase in the ketone bodies; such "ketosis" is characteristically found in diabetes mellitus and starvation. For this type of acidosis dextrose is a specific remedy. For any other acidosis dextrose is not specific and its use would have to be justified on other grounds. Acidosis may occur without ketosis, but such a form in adults rarely reaches lethal proportions. The milder degrees of such acidosis found in adults is usually taken care of successfully with solutions of sodium chloride. This is because sodium forms about 90 per cent of the base of normal serum and chlorine about 60 per cent of the acid,¹² and if sodium chloride is administered, the body may act selectively on it to adjust acid-base balance. To quote Brandson and Hillsman,¹³ "give to the organism a sufficient quantity of isotonic saline solution and it will by selective action retain sodium and discard chlorine in the presence of an acidosis, retain chlorine and discard sodium in the presence of an alkalosis." This is only approximately true; it is an oversimplified statement of a very complex process. But it calls attention to the fact that salt solutions may be useful for reasons other than their influence on water distribution. Particularly when we are dealing with children, where acidosis is more severe, it may be desirable to use more elaborate and definitely anti-acid solutions than isotonic sodium chloride, such as Tyrode's solution or the sodium lactate solution of Hartman.¹⁴ In the acidosis of pure renal insufficiency, chloride solutions cannot be safely used, even though the acidosis is of a nonketogenic type.

Summary

Dextrose solutions are specific for ketogenic acidosis. Sodium chloride solutions are useful for mild nonketogenic acidosis and for alkalosis. For severe acidosis in children, more elaborate alkaline solutions may be necessary.

VOMITING AND INTESTINAL OBSTRUCTION

These will be considered together. So much important work has been done in recent years on the biochemic effects of intestinal obstruction that no attempt can be made to review them here, but only a few salient features will be mentioned which seem pertinent to this discussion. The upper part of the intestinal tract, stomach and duodenum are largely

12. Peters, J. P.: *Cyclopedia of Medicine*, 7:754. F. A. Davis Co., Philadelphia, 1933.

13. Brandson, B. J. and Hillsman, J. A.: *Fluids in Surgery*, Canad. M. A. J., 26:689-698, June, 1932.

14. Hartmann, A. F.: *Theory and Practice of Parenteral Fluid Administration*, J. A. M. A., 103:1349-1354, Nov. 3, 1934.

secretory.¹⁵ Obstruction here results in rapid onset of vomiting and the most important immediate results are dehydration and the loss of chlorides from the system. The ill effects of this are rapid in developing and very serious in a short time. Because more chlorine than sodium is lost, a condition of alkalosis soon develops. Water and chlorides must be supplied in the amounts lost. This can only be done conveniently by the parenteral administration of sodium chloride solution. (In experimental animals, the reinjection of the stomach content into the intestinal tract below the point of obstruction works equally well). Any theoretical excess of sodium ions thus administered in the form of sodium chloride, when we remember that the material vomited may be chiefly hydrochloric acid, is readily taken care of by elimination of other sodium salts through the kidneys.

Furthermore, if the obstruction includes upper duodenum so that bile and the alkaline pancreatic secretions are included in the vomitus, the alkaline sodium ions may be of some value. In any case, the emergency need seems to be the restitution of the chloride deficit along with the maintenance of hydration, and if this is adequately done, life can be prolonged in the presence of this high obstruction until death occurs from starvation. This actually occurs in the experimental animal; in the human patient other complicating factors are usually present. It is of interest to note in passing that in cases of achlorhydria, where the loss of chlorides is minimum, alkalosis is mild and dehydration assumes more relative importance.

Below the duodenum the chief function of the small intestine may be broadly termed absorptive in contrast to the secretory feature of the stomach and duodenum. Obstruction here may be attended with the additional factor of "toxic absorption." This assertion is somewhat arbitrary because it is realized that the demonstration of a toxic factor is still debated. However, in the average case, while vomiting is somewhat slower in developing and in reaching severe proportions, essentially the same problems are implied in its treatment, the correction of dehydration and salt deficit.

Surgical relief, however, will usually be found to be more imperative in the early stages. This may or may not be due to the "toxic absorption" factor mentioned. The chief function of the colon is the reabsorption of water, with little if any absorption

of other products, toxic or otherwise. Obstruction in the lower colon, therefore, will be relatively slow in causing biochemic upsets of the type found in high intestinal obstruction.

Summary

Sodium chloride solutions intravenously replace chloride deficit in vomiting. Isotonic solutions are most generally useful. Hypertonic solutions intravenously may check for a time the secretion of fluid into the intestinal tract because of the hypertonicity of the blood thus resulting, but subsequent dilution of chlorides in blood and tissues with water may be necessary for renal excretion.

SHOCK AND HEMORRHAGE

The difficulty of clinically distinguishing shock from acute concealed hemorrhage has long been recognized; sometimes this distinction is impossible. The reason for this is that the most important feature of each is a reduction in circulating blood volume. In pure shock the blood may become slightly concentrated; in hemorrhage unassociated with traumatic shock there may be slight dilution of the blood,¹⁶ but this difference is neither consistent nor sufficiently marked in most cases to be of much practical use. The two conditions are grouped under one heading in this discussion because the principles underlying the use of intravenous fluid in either condition are similar. It should be unnecessary to repeat here the surgical dictum that in cases of hemorrhage the bleeding should be stopped if possible before any fluid is given intravenously.

This is not the place for a discussion of the various theories relating to the etiology of shock.¹⁷ An attempt is made to point out only some of the possible applications of intravenous fluids in its treatment. In order to do so, however, it will first be necessary to review briefly some recent concepts, and in doing this one may err at times in the arbitrary selection of data. Whatever the eventual generally accepted explanation of shock induction, the suggestions summarized below about the use of fluids intravenously should not be seriously affected.

Shock is characterized in part by a rapid, soft pulse, a marked fall in arterial and venous blood pressure, and generalized pallor of the skin. The essential cause of this is a marked reduction in the blood volume. This may be due to marked vasodilatation with reduction in the *effective* circulating blood volume, a condition of "intravascular hemor-

15. Wangenstein, O. H. and Leven, N. L.: Correlation of Function with Cause of Death Following Experimental Intestinal Obstruction at Varying Levels, Arch. Surg., 22:658-665, April, 1931.

16. Moon, V. H. and Kennedy, P. J.: Pathology of Shock, Arch. Path., 14, 360-371, Sept., 1932.

17. Rukstinat, G. J.: Experimental Study of Traumatic Shock, Arch. Path., 14:378-400, Sept., 1932.

rhage," or to actual loss of fluid from the blood vascular system either as hemorrhage (whole blood) or as extravasation into the tissues (blood plasma).

Surgical or traumatic shock can be divided into two types, initial or primary or immediate shock, and secondary shock. The primary or immediate type is not always evident because it is dependent on pain or fear; it is due to nerve reflex entirely and is doubtless caused by vasodilatation. It occurs immediately after injury to the unanesthetized animal or patient before there is any time for such things as plasma extravasation or absorption of toxic products to operate. This may be termed the "intravascular hemorrhage" mechanism in the reduction of blood pressure and effective blood volume. It does not occur with complete anesthesia, and it may be treated in part with the use of analgesics. Other drugs and other measures, such as the bandaging of limbs or carbon dioxide inhalations (if one is convert of the acapnia theory), may have their place in the efforts to correct vasodilatation and raise blood pressure; but a discussion of this phase of shock treatment is aside from the purpose of this paper.

The duration of this primary shock is quite variable, of course, and it may be succeeded by or blend with in a short time the so-called secondary type. This secondary shock, which is dependent on the mechanical effects of trauma, is due to escape of fluid from the vascular channels into the body cavities or tissue spaces.

For a proper understanding of this phase of shock, the articles of Blalock¹⁸⁻²³ should be consulted in the original. Briefly, he produced a condition of shock, with a reduction in systolic blood pressure to about 70 mm. of Hg., by traumatizing a leg of a dog or by manipulation of the intestines. Extensive measurements were made under a variety of conditions. There was no evidence for the action of any histamine-like substance that produces a general bodily effect. There was always a sufficient loss of blood volume to account for the lowered blood pressure. The loss in blood volume, when an extremity

was traumatized, could be directly accounted for by the measured amounts of plasma fluid and whole blood extravasated at the site of trauma, and when the intestines were traumatized, by the measured amounts of fluid exuded from the peritoneum.

Other experiments involved the reduction of blood volume by hemorrhage alone and the production of shock by burns. Chemical studies of the fluid lost by trauma to an extremity, by trauma to peritoneum, and by burns clearly indicated that this fluid was essentially the same as blood plasma. Furthermore, when shock was produced to a degree causing a fall in systolic blood pressure to approximately 70 mm. of mercury, a loss in blood volume could be demonstrated, amounting to about 4 per cent of the body weight of the animal, and these figures were essentially the same whether the shock (and so the loss in blood volume) was produced by trauma to an extremity, by trauma to intestines, by burns or by hemorrhage.

Still further, there was little evidence for any loss of water from tissues to blood after either trauma or hemorrhage, nor was there evidence for any general increase in capillary permeability; the loss in these experiments was entirely through capillaries at the site of trauma. Animals seemed to withstand the loss of blood cells alone better than the loss of plasma alone.

Rukstinat,¹⁷ in a general review of experimental studies of shock up to 1932, notes the close resemblance of the essential features of shock and hemorrhage and their dependence primarily on a loss of plasma proteins.

This new knowledge of shock mechanism has important bearings on the intravenous use of fluids in shock treatment, and these will now be discussed. The condition of shock is a condition of lowered blood pressure with a concentration of blood and a diminished volume flow of blood. Whether the diminution in effective blood volume is caused entirely by an escape of plasma from the blood channels or whether in some cases it may be due entirely to vasodilatation with capillary stagnation need not seriously alter our ideas as to the emergency use of intravenous fluids. As a matter of practical importance, however, there is usually some combination of hemorrhage and shock in injuries to humans. In such cases, a loss of whole blood from the body or into tissues may modify the picture accordingly. It is regrettable that in experimental work a distinction has not always been made between what might be called the effects of "pure shock" and "pure hemorrhage." Briefly, in hemorrhage uncom-

18. Blalock, A.: Mechanism and Treatment of Experimental Shock; Shock Following Hemorrhage, *Arch. Surg.*, 15:762-798, Nov., 1927.

19. Blalock, A. and Bradburn, H. B.: Trauma to Central Nervous System; Its Effect on Cardiac Output and Blood Pressure; Experimental Study, *Arch. Surg.*, 19:725-734, Oct., 1929.

20. Blalock, A. and Bradburn, H. B.: Distribution of the Blood in Shock, *Arch. Surg.*, 20:26-38, Jan., 1930.

21. Blalock, A.: Experimental Shock; Cause of Low Blood Pressure Produced by Muscle Injury, *Arch. Surg.*, 20:959-996, June, 1930.

22. Blalock, A.: Trauma to Intestines; Importance of Local Loss of Fluid in Production of Low Blood Pressure, *Arch. Surg.*, 22:314-324, Feb., 1931.

23. Blalock, A. et al.: Experimental Shock, *Arch. Surg.*, 22:598-648, April, 1931.

plicated with shock, there may be a dilution of the circulating blood at the expense of the general tissue fluids; in shock uncomplicated with hemorrhage, there is a concentration of the blood.

In distinguishing between shock and hemorrhage, theoretically the laboratory should be able to give us the needed help in the way of blood analyses, particularly the hematocrit reading. Red and white blood cell counts are of less value but have been suggested. In practice, since hemorrhage and shock are so frequently combined in varying degree, these laboratory readings will often be equivocal. We will usually fall back on that thing we call "clinical judgment" anyhow, supplementing it if we are able with our laboratory tests.

Confronted with a case of surgical shock, we should realize that the effective blood volume has been reduced and the blood concentrated because of a loss of fluid from the circulating blood, including not only water and electrolytes or salts but also protein constituents of the plasma. We must realize that the "concentration" of blood merely means a relative concentration of blood cells. This in itself is not essentially harmful; but the loss in effective blood volume (circulating plasma) which has brought about this concentration is the serious feature. A restitution of the blood volume is indicated. If this is attempted merely by pouring into the veins a solution such as isotonic saline, results will not be obtained for the reason previously discussed. It might be worth mentioning that some observers²⁴ believe a markedly lowered blood pressure in itself may result in a generalized increase in capillary permeability in the direction of the tissues. If this be true, it would merely mean intensification of the processes here discussed and would in no way alter our use of fluids intravenously.

What happens if a hypertonic solution is introduced? As mentioned before, hypertonic saline within the blood stream draws water from the tissues and in so doing increases blood volume; but this effect is not sustained because the salt concentration in the tissues soon rises to that in the blood and the water drawn to the blood passes back again. In a case of traumatic shock, this initial increase in blood volume might be quite distinct and there might even be a temporary check to the extravasation of fluid at the site of trauma. But the secondary release of fluid from the blood in this case would be accompanied by a release not only of water and solutes but also of plasma proteins at

the site of trauma, thus further reducing in the blood the one substance which is keeping water there. The only theoretical justification one might find for such a procedure would be a case in which the condition of shock was certain to be of only short duration, so that during the time the blood volume is increased other forces are coming into effect which would restore the organism to such a normal state that the secondary escape of fluid into tissues would not be felt to the point of shock. The diagnostic surety required for such a decision would be remarkable.

Hypertonic dextrose solution would have a similar action, as explained above, on the blood volume. If the injection were carried on at subtolerant rates, a very difficult feat with concentrated solutions, there would be a tendency for water to be drawn to the blood as long as the injection was sustained. When such an injection is stopped, the previous equilibrium soon returns.

If the injection were carried out at higher rates, the effects in a case of shock would be in no important way different from that of salt solutions, because the kidneys are in a state of functional depression due to the reduced hydrostatic pressure in the glomeruli, and the relatively quick excretion of excess sugar by the kidneys in the normal state accounts for the most important difference in the actions of salt and of sugar solutions. Even if the kidneys were functioning, the diuretic and dehydrating effects of excess dextrose would be undesirable in shock. So we see that to use either hypertonic saline or hypertonic dextrose solutions in the effort to restore blood volume in shock is likely to be futile.

Mixtures of dextrose and saline in solution have actions similar to those mentioned separately under discussions of the different substances, and their effects will naturally depend on the concentrations used. It is at present rather common practice to add dextrose in concentration of either 5 or 10 per cent to isotonic saline. A 5 per cent solution of dextrose in isotonic saline is often used more or less routinely during and following many surgical operations. Strictly speaking, such a solution is hypertonic but only slightly so, and the rapid dilution which it undergoes in the blood further lessens any hypertonic effects it might have by itself.

During the period of injection there may be some increase in pulse amplitude; in fact, this is not an uncommon clinical observation, and is presumptive evidence for some increase in blood volume. Very soon after the injection ceases, the os-

24. Erlanger, J.: Blood Volume and Its Regulation, *Physiol. Rev.*, 1:177-207, April, 1921.

motie effects are dissipated. The fuel value of such an amount of dextrose, assuming it all to have been utilized, is small. The most important end-result has been the administration of that quantity of isotonic saline and the effects it may have in combating dehydration. This effect is not to be minimized. The use of such a solution in such a way may be an important part of good surgical care. But to look upon it as important in preventing or curing secondary shock is misleading.

However, other substances can be available which may be of distinct help. Since the constituent of normal blood most important in the maintenance of the osmotic pressure is the serum proteins or colloids, a replacement of these in the greatest possible degree would best fill the demands. Blood itself by way of transfusion fully meets the indications. Any temporary plethora of corpuscles which might be caused by the use of whole blood in the customary quantities is not in any practical degree injurious to health.

The greatest practical objection is the amount of blood which can be secured in a short space of time. Five hundred cc. probably represents the amount used in the average transfusion of today. As we have seen, this may be far below the amount of fluid lost from the circulating blood volume in a case of moderately severe shock. The logical answer is to get more blood if possible and use it. We need not necessarily feel bound to replace the total amount which we could guess as lost in a given case because at the same time that intravenous fluids are being used other corrective measures will doubtless be in operation, and if we can arrest the progress of shock and cause partial restoration of blood pressure and of "tone" in the vasomotor center, we can usually reach a point where the body's own recuperative powers will do the rest.

Acacia. The use of acacia solutions intravenously in the treatment of shock came into prominence in the war of 1914-18.²⁵ It was used extensively at a time when the problem of shock was not quite so well understood as now and in particular when there was very little understanding of the causes of reactions following any intravenous use of fluids. Partly for these reasons it lost favor. Some of the severe reactions following its use seemed attributable to some toxic property of certain lots of acacia, although it is probable that many times the fault lay not with the acacia itself but with the improperly

prepared water in which it was dissolved. At any rate, acacia marketed today for intravenous use by several reputable drug companies is reliably tested and certified, and sterilized ampules ready for dilution in saline are easily procurable.

Its use is practically confined to the treatment of shock. It forms a colloid suspension in water or saline and passes the semipermeable capillary membrane with difficulty. In this way it forms an admirable mechanical substitute for plasma proteins in maintaining the osmotic pressure of the blood. Its chief advantage is its availability for emergency use. It can be kept on hand at all times in greater quantities than can human blood under present systems. It can be diluted and used promptly without the delays of blood typing. Its use in practice is undoubtedly increasing in recent years, and in all probability continued investigation will soon have it relegated to some definite place in the management of surgical cases at least.

It is interesting to note encouraging reports such as that of Huffman,²⁶ who used it in three hundred cases without fatality attributable to the acacia. A six per cent solution in physiologic saline was employed. It required about six days to disappear entirely from the circulation. The blood pressure was promptly elevated in all cases where readings were made, the amount of rise depending as a rule on the amount of solution injected. The pulse did not apparently decrease as rapidly as the blood pressure rose. A minor disadvantage is the fact that a leucocyte count is impossible for several days after acacia is injected.

If the parts played by the inorganic salts and by the proteins of the blood stream are understood, a detailed discussion of the action of acacia should be unnecessary. The indications for its use should be almost self-defining. We may briefly note that present practice seems to indicate that the amounts of the 6 per cent solution commonly used vary from 300 to 600 cc., sometimes more. It cannot be added to a mixture containing citrated blood because calcium will be precipitated, allowing clots to form.

Summary

The symptoms of shock are due to reduction in blood volume. Blood transfusion or acacia solutions are the only means of restoring and sustaining blood volume with intravenous fluids.

(To Be Concluded)

25. Bayliss, W. M.: Methods of Raising Low Arterial Pressure. Proc. Roy. Soc. London, 89:380-393, 1916; Intravenous Injections in Wound Shock, Brit. M. J., 2:553-556, May 18, 1918.

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EDITORIAL

MEDICAL LEGISLATIVE ENACTMENTS

The adjournment of our legislatures has relieved an intense feeling of uncertainty and brought a measure of relief to the medical profession of all of our states. The outstanding source of satisfaction was the failure to pass any bills for the adoption of state medicine which has been a standing menace, and which groups of radicals have insisted would be enacted. No radical medical legislation was passed and few measures were adopted affecting medical practice. A summary is presented of bills introduced, with the disposition made of them.

In Washington only one bill bearing on medical practice was enacted and signed by the Governor. This was a new chiropody measure to permit chiropodists to treat medically and surgically all ailments of the human foot. These objectionable features were eliminated by amendment, and as adopted the bill simply sets forth educational requirements.

Twenty-one bills were introduced which directly or indirectly would have repealed or annulled the Basic Science Law. A bill passed the Senate, introduced by Chiropractor Kerstetter of Tacoma, authorizing chiropractors and sanipractors to treat injured workmen under the Industrial Insurance Act. This failed to emerge from the House committee. The House passed a bill, introduced by U. S. Ford, M.D. of Forks, establishing a state hospitalization board, providing for the building and operating of experimental hospitals and out-stations in certain counties, specifying King and Clallam, the home of the sponsor of the bill, and one in eastern Washington. All persons licensed to treat the sick in the state were to have the privilege at these institutions. They were to be built chiefly with Federal funds. This bill did not emerge from the Senate committee. Another bill which passed the House but failed to reach the Senate was sponsored by the Washington State Chiropractic Association, providing for the appointment of an examining board for the practice of chiropractics and repealing all conflicting acts, including the Basic Science Law.

Among House bills that failed to be considered was one repealing the Basic Science Law and substituting a board dominated by cultists to conduct examinations. Another provided for the licensing of naturopaths, permitting sanipractors and chiropractors to obtain naturopathic licenses without examinations. This would permit the cultists to become naturopaths and to practice legally, exempting them from basic science examinations. Another bill would have made it a misdemeanor for a tax supported, tax exempt or charity hospital to deny cultists the right to practice therein on terms of equality with physicians. A commendable bill, introduced in the House by Dr. R. D. Wiswall, provided for protection of hospitals and physicians against loss in automobile accident cases by giving them liens against indemnity insurance. This bill, prepared by the American Medical Association, has been enacted in several states. Its defeat was due to the opposition by insurance companies and attorneys.

In the Senate the perennial attempt was made by Lydon to reestablish his sanipractic diploma mill, which was closed by the Supreme Court as being fraudulent. This would have given sanipractors every right held by physicians, reestablished licenses revoked for fraud, and exempted sanipractors from the basic science examinations. Another bill to exempt sanipractors from basic science examinations was presented by a "physio-medical and surgical board."

The only bill to establish state medicine was introduced by Neff of Clallam county, which would render complete medical, surgical, dental and institutional service to all residents of the state, taking over all public health matters and public and private institutions. It placed on stated salaries full time physicians, surgeons, dentists, nurses and pharmacists. So many other fantastic provisions were provided that one wondered what medical advice had been secured in assembling its provisions.

Credit for effectively helping to block vicious legislation should be accorded the Public Health League, whose secretary, Miss Helen Wilcox, was indefatigable in working against these measures, ably supported by Frank J. Clancy of Seattle, Chairman of the Executive Committee. In the House the services were always available and dependable of Drs. R. D. Wiswell of Vancouver and D. F. Bice of Yakima.

In the Oregon legislature not a single bill inimical to the public health or to scientific medicine was passed. While the passage of no major medical

legislation, such as the Basic Science Law of the 1933 session, was attempted, numerous bills of importance were enacted into law. The liaison between the State Legislature and organized medicine was the closest in history, due in large part to the splendid cooperation of Clyde T. Hockett of Wallowa County, Chairman of the House Committee on Medicine, Pharmacy, and Dentistry; J. F. Hosch of Deschutes County, also on this committee; and James A. Best of Umatilla County, Chairman of the Senate Committee on Medicine, Pharmacy, and Dentistry. Those interested in the public health owe a debt of gratitude to these three physicians.

A number of bills were enacted into law. One of these regulates the possession and distribution of narcotic drugs and provides a uniform narcotic drug act. Another amends the medical practice act so that the Board of Medical Examiners may hold meetings whenever it deems them advisable, at least twice a year, permits the board to suspend or refuse licenses, and to determine what shall constitute unprofessional or dishonorable conduct. Another bill limits the distribution of appliances and drugs for the prevention of conception and venereal diseases to licensed physicians and licentiates of the state board of pharmacy. Another establishes a new law for the control of infectious venereal diseases, providing for the report of all cases to the state board of health, empowers local boards of health to compel examination and treatment of suspected persons, providing for instruction in precautionary measures to prevent the spread of venereal disease, and in detail making other provisions for the treatment and control of this class of cases. Fortunately, a bill was enacted prohibiting the distribution of barbituric acid drugs and of any preparation containing them, or any compound including more than four grains of these substances, except on the prescription of a licensed physician, dentist or veterinary surgeon. The sum of \$50,000 was appropriated for the construction of an infirmary at the University of Oregon, contingent on obtaining a like sum from public subscription or the Federal government. A bill provides that hereafter any person using the title "doctor," or any contraction thereof, shall indicate the branch of the healing art which he is licensed to practice. A bill authorizes the State Board of Health, upon the advice of a committee appointed by the State Medical Society, consisting of one layman, laboratory operator, two physicians and a member of the State Board of Health, to make rules and regulations for the operation of laboratories for examination of human or animal fluids.

Several bills passed the House, but were defeated in the Senate. One would require that all monies received by all state departments and boards, including the medical board, would be paid into a general fund and expended as appropriated by the legislature. A bill passed the House requiring male applicants for marriage licenses to present a certificate showing freedom from venereal and other communicable diseases. It was defeated in the Senate chiefly because the Washington legislature failed to enact a similar law following a conference on the subject at Olympia. A bill passed the legislature and was vetoed by the Governor, prohibiting any charge for service performed for any test made by a laboratory maintained by public funds, or charging a fee other than for mailing and expense charges for services performed in the collection of any specimen. This was vetoed because the bill would prevent utilization of skilled personnel of Oregon Medical School in law suits and criminal prosecutions. Another bill passed by the House that failed in the Senate would have amended the law requiring licensing of maternity hospitals by the Child Welfare Commission by providing additional licenses by the State Board of Health.

Bills that failed to be introduced in either House or Senate included one to amend the chiropractic act by requiring attendance at certain specified chiropractic colleges. A naturopathic practice act specified the course of study required and denying registration to those who had not taken certain postgraduate courses, and authorizing naturopaths to sign all certificates requiring the signature of a physician. Another bill would have required the secretary of the state board of health to have a doctor's degree, to have had five years experience as a full time public health officer or two years' residence in a recognized school of public health.

The Idaho profession has labored persistently during the past year to prepare the enactment of a bill establishing a state board of health under the direction of a physician as its director. Three times during the session a bill to establish such a board of health was passed by the House and defeated in the Senate. The bill called for the appointment of a board of six members, including three doctors and three laymen, to serve without salary. The active management would be in the hands of a trained health expert. Dr. Mary Callaway of Ada county, the only woman member of the legislature, labored continuously for the passage of this bill, pointing out that its passage was necessary if Idaho was to share in funds available from the Rockefeller Foundation and the United States Public Health Service.

AGAINST COMPULSORY HEALTH INSURANCE

If any one feels favorably disposed toward establishment of compulsory health insurance, in our country, he should study the report of Gustav Hartz,¹ labor economist of Berlin, who has reviewed the result of a half century's practice of social insurance in the land of its inception. Fifty years ago Bismarck introduced this institution, inspired largely by the desire to establish sick insurance for the industrial workmen in Germany. The desire was to relieve the workman of the anxiety for the future disability, when he might find himself without earnings, and also the State's feeling of responsibility for the poorer classes. Although poverty has been considered the cause for social insurance, the writer insists that this creates poverty instead of curing it. "It may easily be proved that social insurance is not only caused by lack of means, but it even makes of it a social principle, aggravates and spreads it, makes it permanent." He states that the expected political results of making the workmen contented and loyal citizens were not only negative, but actually led to ends opposed to those anticipated. Instead of obtaining lasting guarantees for inner peace by means of social insurance, more social struggles ensued which aggravated the previous existing unrest.

It is stated that, though the greatest social crisis in history was doubtless caused by many other factors, its extent did not become so great in spite of, but on account of the existence of social insurance. "Every economic crisis swallows up the best organized social insurance and consumes its funds at both ends, at the end of the diminishing premiums and at the end of the increased benefits." The number of unemployed increased in startling numbers, while employed workmen paying their premiums were continually decreasing. It was impossible to raise the premiums further, so that allowances had to be repeatedly decreased, thus increasing the social tension. When the economic crisis came at last, the promised payments could not be maintained. It is stated that at present unemployed insurance scarcely supports one-third of the unemployed, while others are supported by welfare and other centers.

This description of the difficulties of unemployment insurance has applied with equal force to sick insurance. "Since the sick insurance has been in effect, the average number of days of incapacity to

work owing to ill-health has risen from 5½ to 28 days, although health in general has considerably improved." The impossibility of drawing a line between illness and health is emphasized, as well as the difficulty of diagnosing correctly and distinguishing pretenders and hypochondriacs from really sick patients. In a majority of cases where wages were being decreased, with less work and shorter hours, 50 per cent of wages for unemployment was welcome. Then sick insurance came in conveniently, and sickness and disability were commonly faked. It is asserted that one-third of those drawing unemployment money were doing so dishonestly, and in one district 43 per cent refused to take work which was offered them. The casualty hospitals were called "bluffers' universities." At one time authorities employed confidential doctors to whom patients were obliged to submit for examination when too ill to work. At one time more than 2000 patients were ordered for examination, of whom 1816 at once declared their complete recovery, and only 50 per cent were found to have any illness. The conclusion is asserted that "the sound idea of sick insurance has become thoroughly unsound, and the harm it does far outweighs its advantages." "A pension and support craze has been fostered that aims to make the entire population of the country state pensioners, relieving the individual thereby of the duty of caring for himself and of saving."

The remedy advocated by this writer is a system of compulsory savings on the part of all employees by means of social savings accounts, requiring each workman thus to accumulate a bank account. "It has been proved that state social insurance saps the supply of capital required by private life insurance. A workman with savings of his own can insure his future by insuring his life." "If Germany had no social insurance system but still had her fifty years of experience in it, she certainly would not adopt social insurance today."

The question is asked: "Will America copy Germany's mistakes?" In view of the disclosures of this writer this is a pertinent query. Undoubtedly many of the enthusiastic advocates of social insurance and socialized medicine have not familiarized themselves with facts relating to the administration of these systems in other countries but on general principles have accepted them as desirable because so long exemplified in Germany and Britain. The medical profession owes it to the public as well as itself to give wide publicity to the true facts concerning the disappointments and failures of these alleged forms of protection and security.

1. Hartz, G.: Will America Copy Germany's Mistakes? N. Y. State J. Med., 35:193-209, March 1, 1935.

ANNALS OF MEDICAL HISTORY

Anyone devoted to medical progress must have an interest in medical history. To appreciate the advances in medical science of the present and past generations it is necessary to possess information of occurrences in the progress of our predecessors. Accumulation of medical history was fragmentary and uncertain until about the time the United States entered the World War when, under the inspiration of Sir William Osler, was launched *Annals of Medical History*, a quarterly publication devoted to the accumulation of literature pertaining to the history of medicine. During subsequent years this has become one of the outstanding medical magazines of this country, its field being unique and noncompetitive.

One interested in elegant scientific publications views with admiration every issue of this Journal, its composition and style being of the best of the present day, reflecting great credit on its publishers, Paul B. Hoeber, Inc., New York, who have spared no effort or expense to make it one of our supreme publications. It has stood almost alone among medical magazines, depending for its maintenance exclusively on subscriptions, never having published advertising of any sort. At the present time, owing to a diminished subscription list, its existence is menaced on account of limitation of income. An appeal is therefore presented to members of the medical profession, who are interested in maintaining an unequalled enterprise for preserving medical history, to demonstrate such an interest by subscribing to this magazine, the price of which is \$10 per year. Anyone thus inclined can obtain more detailed information by addressing the publishers.

CHILD HEALTH DAY

It has become popular in recent times to establish days for the promotion of a great variety of enterprises, some of which maintain a national interest and benefit many worthy causes. One of interest to all medical men is "child health day," inaugurated ten years ago by the American Child Health Association, endorsed later by congressional action and other national and state organizations. The importance of observing this day is due to the fact that it has been selected to emphasize the necessity of diphtheria immunization. This project has been chosen, owing to the fact that since 1930 there has been little reduction in the number of diphtheria deaths throughout our country.

The chief slogan of this project is "immunize all children between the ages of six months and six

years." The aim is to make early immunization a routine practice by all physicians, and not to limit this especially to pediatricians. It is hoped that local medical societies will call attention to this May Day purpose, and make it an annual feature for the protection of children. It is by no means intended to confine this project to this particular day, but its emphasis may be a reminder to all physicians of the importance of bringing to the attention of all persons, particularly parents and teachers, the beneficent results of diphtheria immunization.

MEDICAL NOTES

AMERICAN MEDICAL GOLFING ASSOCIATION will hold its twenty-first annual tournament at Northfield Country Club, Atlantic City, N. J., June 10. Thirty-six holes of golf will be played in competition for the seventy trophies and prizes in the nine events. All male fellows of the American Medical Association are eligible and cordially invited to become members of the A. M. G. A. For further details write the executive Secretary, Bill Burns, 4421 Woodward Avenue, Detroit, Michigan.

OREGON

HONOR TO PIONEER SURGEON. At a recent meeting of the Pacific Coast Surgical Society, Andrew C. Smith, distinguished pioneer surgeon of Portland, was elected an honorary member. Such distinction could not be conferred on a more worthy or respected member of the profession. The whole medical profession of the Northwest knows and honors Dr. Smith, and its congratulations are extended to him. This distinction is the more noteworthy when it is considered that the only other honorary members of this organization are Dr. John Binnie, retired and living in California, Dr. Allen Kanaval, residing in Pasadena, and Dr. Charles Rowan, formerly Professor of Surgery at Iowa, and now living in Los Angeles.

INFIRMARY TO BE ERECTED. Since Oregon State College at Corvallis has had allotted to it \$100,000 from P. W. A. funds, this sum will be utilized for the erection of a new infirmary. Of this amount \$30,000 is a gift, the remainder a loan, to be retired from income from the regular student building fee.

ADDITION TO BE COMPLETED. It is announced that the new wing of St. Charles Hospital at Bend will be completed by April 15. This will provide a much needed increase to the hospital facilities.

NEW UNIVERSITY PHYSICIAN. M. B. Hesdorfer has been appointed physician for University of Oregon health service. He has arrived in Eugene from the University of Minnesota, from which he obtained his medical degree. He replaces S. D. Caniparoli, who has gone to Portland.

RECORD OF BIRTHS. On March 4 at Pacific Hospital, Eugene, a boy was born, the 3400th child born in the institution since its foundation. A numerical record of all births has been kept, and special honors given to every 100th child.

OPENING FOR A PHYSICIAN is announced on the Siletz Indian Reservation at Siletz, for which the government will pay salary of \$1,200 per year. Anyone interested can

write to Mr. James T. Ryan, superintendent of Salem Indian School, Chemawa, Ore.

PARTNERSHIP FORMED. G. D. Beardsley, who has practiced in Eugene for seven years, and Charles E. Hunt, for eleven years, have formed a partnership for a women's and children's clinic in that city, limiting practice to obstetrics and diseases of women and children.

NEW HEALTH OFFICIAL. Courtney Smith of Oregon City has been appointed Clackamas County Health Officer. He succeeds A. H. Johnston, who practices in Oregon City.

WEDDING. Richard F. Berg of Portland and Miss Elizabeth Eastman of Seattle were married in the latter city March 2.

WASHINGTON

STERILIZATION IN KING COUNTY. In order to settle the perennial controversy over sterilization, Prosecuting Attorney Warren G. Magnuson of Seattle has advised King County Hospital that its medical staff has a right to sterilize men and women applying for treatment for economic or other reasons. Although this right was established by legislative action several years ago, its practice in desirable cases has been opposed, oftentimes successfully, by individuals and organizations. From the prosecutor's office it was asserted "in our consideration of these matters we have given no weight to the recommendation of the various welfare and social organizations."

PUGET SOUND SURGICAL SOCIETY held its annual clinic and banquet at Seattle, March 23. Dr. Verne C. Hunt of Los Angeles was the special guest who held clinics morning and afternoon at King County Hospital. About sixty visitors were present from other cities. At the Rainier Club banquet a hundred and forty guests were present. This was one of the most successful meetings in the history of the society.

COUNTY FARM FOR SANITARIUM. At a recent meeting of Whatcom County Commissioners at Bellingham it was proposed by E. R. Coffey, State Director of Public Health, that the present county farm be converted into a tuberculosis sanitarium. He stated the location is ideal, and that with a modern structure a satisfactory institution could be prepared for tuberculous patients.

COWLITZ COUNTY MEDICAL SOCIETY held its regular meeting with a dinner at Hotel Monticello, Longview, March 5. At the same time the women's auxiliary met at the home of Mrs. J. F. Barton, when Mrs. J. F. Christensen read a paper on "The Child's Mental Health."

H. W. MIKKELSEN of Seattle has located for practice at North Bonneville. This new city is being developed by the construction of residences and business buildings as a result of the government dam construction now in progress.

PRESIDENT OF ASSOCIATION. Theodore L. Bordsen of Seattle, who is pursuing an eight months' course of study in Vienna, has been elected president of the American Medical Association of that city.

PAUL BARNASS is located for practice in Seattle, having come to that city from Manheim, Germany. He was one of the German-Jewish physicians obliged to leave the country where his ancestors have lived for more than 300 years, on account of the expulsion campaign against German-Jews.

H. H. McLEMORE, who was formerly located at Wash-tucna, has located for practice at Spokane.

IDAHO

RUSSELL R. CRAFT, who formerly practiced at Marysville, Calif., has located at Twin Falls, where he will practice for the future.

OBITUARIES

DR. FRANK S. BOURNS of Seattle, Wash., died March 27 from disease of the heart, aged 68 years. In spite of recent ill health he had continued in active practice until the day of his death. He was born in Michigan in 1866, and received his B.S. degree from the University of Michigan in 1890. During his university course he spent one year in the Philippine Islands with Dean Worcester, pursuing ornithological work for the university. Again, during his medical course, he spent a year there in similar work. After obtaining his medical degree from the University of Michigan in 1896, he became Professor of Pathology and Bacteriology at Southern Medical College, Atlanta, Ga. At the outbreak of the Spanish-American War he volunteered, becoming a Major in the Medical Corps, his previous activities in the Philippines and familiarity with the Spanish language making him a valuable assistant to the Army. In 1899 he was president of the Board of Health at Manila, and in 1902 was appointed Commissioner of Health for the Philippine Islands. He located for practice in Seattle in 1904. During the bubonic plague excitement on the Pacific Coast in 1907, he was appointed special health officer and became chief medical inspector of the Health Department in 1909. He was one of the first physicians of the state to specialize in radiology, developing a large practice in this line of special work. He was a man of genial disposition, with the confidence of patients and fellow practitioners, who trusted his judgment and relied upon his wide experience. He will be missed as one of the leading and trustworthy physicians of the state.

DR. FRANK HAYWARD COLLINS of Goldendale, Wash., died suddenly of coronary thrombosis on March 18, aged 64 years. He was born at Paola, Kansas, Nov. 6, 1871. He graduated from Paola high school with high honors and taught school for Miami County. Later he attended Kansas University and St. Louis University of Michigan at Ann Arbor and received his M.D. degree from the University School of Medicine in 1903. After graduation he returned to the University of Michigan to engage in research work and was awarded a fellowship for his efforts in research work with the Texas tick. In 1904 Dr. Collins located in Goldendale. Since that time he took a prominent part in the welfare of the community and local civic affairs. During the World War he was attached to the Medical Corps of the 63rd Infantry.

DR. WILLIAM B. SCOTT of Seattle, Wash., died March 12 at Hospital Hotel Dieu, New Orleans, where he had gone for his health, aged 60 years. He was born in Nebraska in 1874. He obtained his medical degree from George Washington Medical School, Washington, D. C., in 1908. Shortly after that he located for practice in Seattle, residing in the section known as West Seattle. He retired about eighteen months ago in consequence of ill health.

DR. JAMES J. STORY of Lake Grove, Ore., died March 15, following a prolonged illness, aged 81 years. He was born in Underhill, Vt., in 1854, and obtained his medical degree from Howard Medical School in Washington, D. C., in 1890. He came west in 1907 and practiced in Portland. He retired from active practice several years ago.

REPORTS OF SOCIETY MEETINGS

OREGON

JACKSON COUNTY MEDICAL SOCIETY

Pres., C. A. Haines; Secty., D. H. Findley

Jackson County Medical Society held its regular meeting March 13 at the Civic Clubhouse, Ashland. About twenty-five members were present and entertained by President and Mrs. Charles A. Haines. A. E. Dodson read a paper on "Treatment of Renal Stones."

C. L. Coyle has settled for practice at Corvallis. After graduating from Loyola University he served as interne for a year at Mercy Hospital in Chicago.

LANE COUNTY MEDICAL SOCIETY

President, C. E. Hunt; Secretary, E. E. Furrer

Lane County Medical Society held a meeting at Hotel Osburn, Eugene, March 15. The Scientific program followed a banquet. The paper of the evening was by William Levin of Portland, from Oregon State Public Health Laboratory, on "Present Day Problems in Public Health." Plans were proposed for a campaign against diphtheria, in which physicians will give toxoid over a period of two weeks, beginning March 18. Publicity was proposed by means of daily papers, the radio and talks before clubs.

WASHINGTON

JEFFERSON COUNTY SOCIETY

President, L. A. Schneler; Secretary, R. S. Crist

Jefferson County Medical Society held a meeting following an informal dinner at Port Townsend Golf Club, February 27. Nathan Thompson, president of the state association, was the chief speaker, and discussed matters of interest concerning the state organization. Glenn N. Rotton of Seattle read a paper on "Management of Postpartum Hemorrhage."

The Woman's Auxiliary to Jefferson County Medical Society held a meeting at the same time, at which Mrs. Thompson was the chief speaker, being president of the auxiliary to the state medical association. She explained the purposes and activities of the auxiliary to the ladies present.

KING COUNTY MEDICAL SOCIETY

President, R. L. Zech; Secretary, F. H. Douglass

King County Medical Society held its regular monthly meeting March 4 in the Auditorium, Medical-Dental Building, Seattle, with President R. L. Zech in the chair. Minutes of the previous regular meeting were read and approved. The following were elected to membership: L. S. Harris, R. W. Kite and G. F. Thomas.

David Metheny reported a successful operation on a patient with diverticulum of the esophagus. Some improvements in surgical technic were described and illustrated with slides.

Brien T. King presented a resume of the activities of the House of Delegates of the A. M. A. at its recent special meeting held in Chicago. Its purpose was to hear the report of the work of the Committee on Economic Security, appointed by President Roosevelt, as well as the committee appointed to study compulsory health insurance and allied subjects. The opinion was expressed that the final report will probably recommend a program of national health insurance and compensation for loss of time due to illness.

There was also a report of the bill introduced by Senator Wagner of New York, setting up a plan for old age insurance, unemployment insurance, and child and maternity welfare. The criticism of these various proposals was that if put into effect they would place the practice of medicine under direction and control of a lay board, against which the House of Delegates of the A. M. A. expressed itself as unalterably opposed. The complete report of the House of Delegates was endorsed and officers of the King County Medical Society were instructed to notify officials of the A. M. A. of its action.

On motion of Park W. Willis, Sr., it was voted to extend the thanks of the Society to Drs. King, Mason and O'Shea for their activities at the special meeting of the House of Delegates of the A. M. A.

Dr. Dalton stressed the importance of writing state senators and representatives to combat vicious legislative bills directed against medicine and the basic science law.

Owing to the lateness of the hour, papers scheduled for the meeting were deferred to a later date.

SNOHOMISH COUNTY SOCIETY

President, A. H. Gunderson; Secretary, E. J. VanBuskirk

Snohomish County Medical Society held a meeting March 5 in the Medical-Dental Building Library at Everett. H. R. Secoy reported on "Surgical Treatment of Strabismus," illustrated by moving pictures. Nonsurgical treatment of the disease was described by C. L. Hoeffler. H. T. Rhoades reported on the eye, ear, nose and throat physicians' convention recently held in Los Angeles.

SPOKANE COUNTY MEDICAL SOCIETY

Pres., D. H. Lewis; Secty., F. J. Burns

Spokane County Medical Society held its monthly meeting at Paulsen Medical-Dental Building March 14. A report of the special session of the House of Delegates of the American Medical Association was made by Dr. John O'Shea, who attended the session. By unanimous vote the society endorsed the findings of the National House of Delegates. Milo T. Harris and Margaret Irene Grieve were elected to membership in the society.

C. B. Ward of Seattle, formerly of Spokane, gave an illustrated address on recent findings in roentgen and radium treatment of cancer. The discussion was led by Joseph Asprey and Arthur Betts.

WALLA WALLA VALLEY MEDICAL SOCIETY

Pres., H. C. Cowan; Secty., G. R. Gowen

The regular monthly meeting of Walla Walla Valley Medical Society was held at the Grand Hotel, Walla Walla, March 13. The meeting was preceded by a dinner. Forty-four doctors were in attendance.

The Woman's Auxiliary met in an adjoining room and was well attended. The auxiliary is deserving of praise for the interest taken by the ladies.

A short business session (which is of local interest only) was followed by an excellent scientific program given by Alexander Hepler, Chas. E. Watts and John F. LeCocq of Seattle. The discussion and questioning which followed these papers left no doubt as to the excellence of the presentation or the appreciation of the local doctors.

A special meeting of the society was held in the lecture room of St. Mary's Hospital Monday evening, March 18. So far as the records show or the secretary can remember,

this meeting had the largest attendance of any special meeting ever held by the society.

Among other matters taken up was the question of trying to induce the Washington State Medical Association to hold its 1936 meeting in Walla Walla. The discussion

brought out the fact that, while the medical profession of this locality would be happy to act as host to the State Association, the majority of the doctors feel that the year 1936 would be an inopportune time to have the state meeting here.

STATE DEPARTMENTS

OREGON

COUNCIL OF OREGON STATE MEDICAL SOCIETY

Portland, Ore., March 21, 1935.

At the meeting of the Council of the Oregon State Medical Society held on the evening of March 6, the following subjects of interest to the profession were acted upon.

It was decided that at the next meeting of the State Society the Cancer Committee shall be a standing committee consisting of six members, two to be elected each year and they are to represent various specialties and various hospitals, together with one associate member from each councilor district, the latter to be chosen by the component societies in each district or to be selected by the president from each district.

It was decided, further, that at each annual meeting of the State Society, some phase of cancer shall be discussed in a symposium; that each county society shall hold at least one meeting a year devoted to some phase of cancer, the program to be presented by a special team from the State Society when so requested; that the State Society shall attempt to disseminate cancer information to its members only and that education of the laity be presented by the county societies with such help from the State Society as they may request.

Ralph A. Fenton reported that the Board of Trustees of the American Medical Association were very much interested in the report of the disallowance by the Revenue Agent in Seattle of the automobile expense of physicians in Oregon, Washington and Alaska, in connection with federal income tax returns and that the Board had authorized Dr. William C. Woodward, head of the American Medical Association Legal Department, to appear in behalf of Northwest protestors in connection with any appeal to the Board of Tax Appeals or the courts. Dr. Fenton also gave a comprehensive report of the action taken by the house of delegates in regard to health insurance and the Wagner Lewis bill now before Congress.

The House of Delegates of the American Medical Association voted to oppose the organization of child and maternal health activities and social insurance being directed by a board of lay members in the Department of Labor. They believe that the public, in order to obtain adequate services, must be directed in technical matters by one

learned in the practice of medicine. They also oppose compulsory health insurance as being unnecessary and too costly.

Banner R. Brooke reported a plan for the publication of a bulletin in conjunction with the Multnomah County Medical Society to be sent to every ethical physician in the state, to the end that greater cooperation and unity may be promoted. The bulletin will not affect the material appearing in these monthly reports but will cover subjects too lengthy for inclusion here.

The Executive Committee reported through the Executive Secretary that the Society disapproves the giving of publicity to income tax returns and the Oregon delegation in Congress were advised of this decision.

The Society opposes the proposed drastic limitation by Congress of the number of army flight surgeons on active status and this decision was also conveyed to the Oregon delegation in Congress.

It was decided that the May meeting of the Council be held at Klamath Falls, Monday, May 13, the date preceding the annual meeting of the Southern Oregon Medical Society in Ashland.

The Council voted to convey to Governor Charles H. Martin its approval and appreciation of the appointment of Dr. Robert L. Benson to the State Relief Committee, and suggests, "that each state and county relief committee engaged in the apportionment of federal funds shall include a physician among its members."

The Twenty-second Annual Meeting of the Alumni Association of the University of Oregon Medical School was the outstanding meeting in the entire history of the organization. The superior program was attended by the most interested and enthusiastic membership in its history. Over two hundred and fifty were registered chiefly from the Northwest, but distant states were also represented. Dr. Harold Brunn of San Francisco was the guest speaker. These meetings, including as they do, papers, clinics and round-table discussions, are looked forward to as a post-graduate review. Two hundred attended the banquet. The feature of the program was an afternoon set apart to papers presented by Washington physicians.

A. G. BETTMAN, *Editor*.

WASHINGTON

STATE TRUSTEE MEETING

Everett, Wash., March 25, 1935.

To Members of Washington State Medical Association:

I have asked Frank J. Clancy, Chairman of the Executive Committee of the Public Health League, to give a report of the battle of the 1935 legislature. Too much praise cannot be given Dr. Clancy and those who worked so strenuously with him for their splendid success. The feel-

ing that this success cannot prevent a harder battle with less chance of success in the next legislature prompted a call for a meeting of the Trustees of the State Association on March 24.

After hearing the reports of Brien T. King, our delegate to the special meeting of the House of Delegates in Chicago, the trustees adopted a resolution endorsing the action taken at that meeting. This action was to the effect that

we oppose all forms of compulsory health insurance as inimical to the public health, but we are not opposed to those voluntary prepayment or postpayment plans that are being tried out in various states and counties, seeking to give the low wage worker the benefits of the best service on a basis of distributed costs. After two hours' discussion it was voted that the State Association should, through its Public Relations Committee, lay out detailed plans for combatting the propaganda for politically controlled compulsory health insurance. The Finance Committee will undertake to discover the best ways and means of financing such a campaign. We are now at the crossroads and we must not let dollars stand in the way of success which means so much for ourselves and especially for public health.

Further action was taken advising the State Service Bureau, which has been endorsed by the State Association as Washington's plan to solve the problems of medical service to the low wage earner, to forward its plans and go into greater activity. Since every member of the profession may, if he wishes, be a member of his local Bureau and hence of the State Bureau, it furnishes an ideal agent for the profession to work out the service mentioned above.

As a result of my plea for contributions of \$1.00 per member to increase the efficiency of committee work, \$460 have been received. It is hoped that others will send in their contributions. This money is being spent only for constructive committee work.

Your President had a pleasant visit to a combined meeting of Clallam and Jefferson Counties on the invitation of President Schueler of Jefferson County. Many doctors and their wives sat down to a fine dinner and afterwards separated for meetings of their own. Mrs. Thompson accompanied me and described the work of the Woman's Auxiliary to the ladies while I attempted to bring the message of the State Association to the doctors. When so many men will travel for fifty miles or more to attend these meetings, it speaks well for their interest in their profession and encourages us to believe that after all we may get together and continue the march of the profession in the conquest and prevention of disease.

Just a word or two again regarding the State Meeting in Everett, August 12-14. Arrangements are being made for a banner meeting. Will those who wish to present papers please notify the Chairman of the Program Committee, Dr. A. P. Duryee, Medical Dental Building, Everett. Several have done so but we should have more. If local county secretaries could send in the titles and authors of the outstanding papers of the year in their societies, it would be a help to the committee, I am sure. We wish to get a well-rounded program. I trust those who are preparing scientific exhibits will notify me as soon as possible.

NATHAN L. THOMPSON,

President Washington State Medical Association.

WOMAN'S AUXILIARY

Everett, Wash., March 23, 1935.

To Auxiliary Members:

As our auxiliary year draws to a close, we realize there are many things to do. Let us each close our year's work with credit to our own and our state auxiliaries. As we look back, we will realize that we might have done more

or perhaps could have been a little more alert to our opportunities. However, "yesterday is past, today is ours and tomorrow belongs to God." So let us do today the things that are required of us. My letter I am mailing to you will require some things done today.

The year's work has been most pleasant and I cannot tell how much I have enjoyed knowing you and working with you. My visit with each of the Auxiliaries, as we (doctor and I) have visited many of the counties in the state, has been a great inspiration and I trust that I have helped you to see more clearly the things for which we are striving. I found you all so gracious and hospitable, it will long be a pleasant memory. What a fine group of women are the doctors' wives! We hope next month to complete our visits.

I found you were having interesting meetings and doing the special work that your particular communities needed. Every auxiliary was most anxious to know and understand the legislative measures that were being presented and they are extremely interested in studying socialized medicine in order to be informed on the problems that beset the medical profession.

Our Executive Board meeting held with me in February was well attended. There are eighteen Board members, fifteen being present, three absent because of illness or illness in the home. I feel this shows the interest of the women of the state.

I wish to call attention to the National Meeting at Atlantic City, June 10-14. What a grand place to hold the meeting! I wish Washington might have her quota in attendance. These are meetings that inspire us and give us the incentive to carry on the work as outlined by the National. There will be many of the wives of the Canadian doctors present at this meeting.

While we cannot all go to the national meeting, I am certain most of us can come to our own state meeting, which will be held in Everett, August 12-14. We are going to try and have our fourth annual meeting compare favorably with the three that you have attended.

The essay contest papers are now in the hands of the State Public Relations Chairman, Mrs. Edwin L. Carlson, and the prize essay will soon be announced. I am certain you are all anxious to know if it is coming to your county.

I have just received an interesting letter from Yakima Auxiliary, since my visit there in February, telling of a fine meeting with a review of Dr. Haggard's book, "The Doctor in History." A record attendance of nineteen members. They have just added four or five new members.

This month I have had the honor of being the guest, with Mrs. C. B. Jones, state treasurer, and Mrs. A. P. Duryee of Everett, of King County Auxiliary. We had luncheon with the Executive Board with Mrs. C. E. Haggard, president of King County Auxiliary, and Mrs. David C. Hall, one of the state vice-presidents, as hostesses. This pleasant hour was followed with their regular auxiliary meeting. The program included a most instructive report by Dr. Brien T. King who had just returned from the meeting of the House of Delegates of the A. M. A. held in Chicago and a talk by Dr. I. A. Weichbrodt on our legislative bills.

MRS. NATHAN L. THOMPSON,

President, Woman's Auxiliary to Washington State Medical Association.

IDAHO

FAILURE OF PUBLIC HEALTH LEGISLATION
AND OTHER MATTERS

Twin Falls, Idaho, March 22, 1935.

We have been defeated in our attempt, as guardians of the public health, to secure legislation which would for the first time have guaranteed an adequate public health service for the state of Idaho. The reason for our failure would seem to lie wholly within the field of petty besmirched politics. We were given assurances of influential backing from the source of political power which controlled the legislature that did not materialize. The public health bill went through the House three times under the careful guidance of Dr. Ray and Dr. Calloway. But thrice it was laid low in the Senate, two of those times by direct and recorded vote. This in spite of the splendid effort made by Dr. Stratton.

The defeat is directly at the door of Senator Chase Clark, the acknowledged administration spokesman in the Senate. The implications seem obvious and the logical conclusions seem simple and easy. It was evident that the people of the state desired the measure to pass. The true opposition came from those whose inefficiency and indifference to public welfare had to be admitted if this legislation was enacted. The bill only required the doing of those things now in the power of the Commissioner of Public Welfare to do if he so wills. It seems that the reigning administration in Idaho would rather protect one political appointee than the lives and health of the people by whose franchise it is now in power.

The public health bill was defeated but the Idaho State Medical Association is in no wise defeated and feels now well warmed to the fight. Let us recruit our personnel to

full strength and close ranks and carry on. We are obliged to do this for the families who look to us for better health and longer lives. The fight is on. Another legislature convenes in two years.

Your president recently conferred in Chicago with the five men from the faculty of Northwestern University Medical School who will constitute the faculty of our graduate course at our next meeting to be held September 9-13. These most excellent teachers are formulating a curriculum which will soon be published. It will suffice at this time to urge you to be in Boise for the first lecture and to remain there until the last one is finished.

As to the IERA, the thing was born; during its infancy it has been operated upon repeatedly with such disfigurement that its own parents would not recognize it; no sooner would its organs begin to function than one of them would be extirpated; then new parts would be transplanted into it; and finally after several comas it went into a state of catalepsy recently and was entombed, only to be resurrected today. Now we shall see what we shall see.

A special meeting of the State Association was held recently in Boise to receive the report of Dr. E. N. Roberts, our member of the House of Delegates of the American Medical Association, concerning the recent special meeting of the House in Chicago. The report was informative and inspiring; inspiring to know the wisdom with which our interests are being protected and the gallant fighting spirit with which the united profession is meeting the sinister forces bent upon socializing our highly individualistic profession. Here again the fight is on and our resistance must be united and determined.

CHARLES R. SCOTT,

President Idaho State Medical Association.

BOOK REVIEWS

PRACTICAL ENDOCRINOLOGY. Symptoms and Treatment. By Max A. Goldzieher, M.D., Endocrinologist, Gouverneur Hospital, N. Y.. Illustrated. 326 pp., \$5.00. D. Appleton-Century Company, Inc., New York and London, 1935.

This volume approaches the subject of disturbance in endocrine function from the clinical angle. Clinical manifestations are marshalled singly or in groups and paraded before the reader as evidence of possible endocrine disturbance. Such parading of signs and symptoms is informative. The consideration of possible correlation between such signs and symptoms and endocrine disturbances is stimulating.

If fact and fiction in endocrine medicine had not been so distressingly intermingled, information and stimulation gained from such a presentation would be altogether advantageous. But they have been and in this book still continue to be intermingled. What we would like to believe of endocrinology is too often stated in this volume as fact. Such statements might be tolerated, if they were supported by bibliography. But this volume is almost totally lacking in bibliography. The reader who is not well informed is not given encouragement and assistance to check on credibility of statements which might be questioned. All in all, the presentation is informative and stimulating but lacks much in being a dependable guide in practical endocrinology.

C. F. DAVIDSON.

PERIODIC FERTILITY AND STERILITY IN WOMAN. A natural Method of Birth Control. By Prof. Hermann Knaus, head of the clinic for gynecology and obstetrics of the German University of Prague. Authorized English translation by D. H. Kitchin of Gray's Inn, Barrister-at-Law, and Kathleen Kitchin, M.Sc., M.B., B.S., London. With 64 illustrations and 12 tables. Wilhelm Maudrich, Vienna. Distributed by The Concip Company, Hobart, Indiana, 1934.

The controversy for and against contraception has established a live interest in publications on this subject. It has been accentuated by the work of the author, whose conclusions and recommendations have been endorsed by ecclesiastical and other authorities who have condemned other contraceptive measures. This volume presents the results of intensive work on the periodic fertility and sterility in animals, showing convincingly that the period of fertility has been definitely established in the series under investigation, and its relation to ovulation. The biologic role of the corpus luteum is demonstrated in the active "pseudo-pregnancy" of the rabbit, which ovulates only as a result of copulation some ten hours afterwards. By vasectomizing the buck the rabbit ovulates without pregnancy. Changes in the corpus luteum have thus been studied and definite information obtained concerning the relations between this body and ovulation.

In the human it has been demonstrated that the fertile ovum is extremely short lived, being restricted to twenty-four hours from the time of ovulation. The spermatozoon loses its fertility in less than forty-eight hours, owing to

the heat of the abdominal cavity. Therefore, the period during which conception can take place consists of the ovular period, plus three days before it and one day after it. "In women with normal reproductive physiology ovulation always takes place on the fifteenth day before the onset of the period." In order accurately to determine this day the woman should keep a true record each month over a protracted period and thus an average may be obtained, from which may be calculated with considerable certainty the day of ovulation. Consequently, it is concluded that birth control may be exercised by prohibiting coitus during this brief period before and after ovulation. The reader will find much of interest concerning this debated question by a study of this volume.

CONCEPTION PERIOD OF WOMEN, by Kyusaku Ogino, Head of the Gynecological Section of Takeyama Hospital, Niigata, Japan. English translation by Dr. Yonez Miyagawa, Director of Government Institute for Infectious Diseases, Tokyo Imperial University, Hongooku, 94 pp. Medical Arts Publishing Company, Harrisburg, Pa., 1934.

The author was the first to announce, in 1924, that human conception can occur only in a certain limited period between two menses, and this conception period can be predicted practically in most cases. Married people obliged to carry on a life of abstinence or continued contraception can be released from such restrictions by applying the knowledge contained in this book. The author recites the evidence for the assertion that the human conception period is in the eight days from the twelfth to the nineteenth day before the forthcoming menses. The period of eleven days, from the first to the eleventh before the subsequent menses, is the sterility phase. Later Knaus published his similar conclusions, giving the period of human conception as five days instead of eight. These views, so much at variance to previously accepted beliefs in the human period to fertilization, can be studied at length by the reading of these books.

PRACTICAL OBSTETRICS for Students and Practitioners. By P. Brooke Bland, M.D., Professor of Obstetrics, Jefferson Medical College, and Thaddeus L. Montgomery, M.D., Associate in Obstetrics, Jefferson Medical College. Second Edition. Illustrated with 516 engravings, including 21 colored plates, 730 pp., \$8.00. F. A. Davis Company, Philadelphia, 1934.

The title of this volume is timely. While some authors go into far more detail, making their works better text books for the medical student, these authors have given the practicing physician a concise, up-to-the-minute, complete work on the subject. The print is easy to read, the style pleasing and the book is profusely and well illustrated.

A short chapter on obstetric jurisprudence is very well stated. This is an excellent book for any man doing obstetrics in any amount to have in his library.

W. M. O'SHEA.

BRONCHOSCOPY, ESOPHAGOSCOPY AND GASTROSCOPY. By Chevalier Jackson, M.D., Sc.D., LL.D., F.A.C.S., Professor of Bronchoscopy and Esophagoscopy, Temple University; Bronchoscopist, Temple University Hospital; and Chevalier L. Jackson, A.B., M.D., M.Sc. (Med.), F.A.C.S., Professor of Clinical Bronchoscopy, Temple University; Bronchoscopist, Temple University Hospital. Third Edition, reset. 485 pages, with 207 illustrations and 15 color plates. Cloth, \$9.00 net. Philadelphia and London: W. B. Saunders Company, 1934.

The authors state that they have endeavored to present the fundamentals of the working knowledge of bronchoscopy in this volume, without devoting space to historical

considerations. The book is based on their own clinical experiences which have been extensive. The first chapter describes the necessary instrumentarium, with illustrations and descriptions for the use of needed instruments. This is followed by a discussion of anesthesia and the methods necessary for laryngoscopy, bronchoscopy and esophagoscopy. Much space is devoted to foreign bodies in the air and food passages, with the methods for their extraction. Mechanical problems of bronchoscopic extraction comprise a fascinating chapter, with a description of what seems almost like incredible results. Chapters on treatment of benign and malignant tumors demonstrate modern methods of accomplishing results which were impossible before the employment of the bronchoscope. The many illustrations afford vivid amplification of the text, while the plates with beautiful colored illustrations clearly display visions obtained through the tube. No surgeon engaged in this special field can carry on without this volume.

A TEXTBOOK OF SURGERY. For Students and Physicians: By W. Wayne Babcock, A.M., M.D., LL.D., F.A.C.S., Professor of Surgery and of Clinical Surgery in The Temple University, etc. Second Edition, Rewritten. 1312 pages with 1032 illustrations and 8 plates in color. Cloth, \$10.00 net. Philadelphia and London: W. B. Saunders Company, 1935.

The first edition of this book enjoyed such a genuine revision that in this volume we find a modern up-to-the-minute exposition of surgery in its truest sense. Not only have many illustrations been added but many new sections have been written on such subjects as the parathyroid glands, the sympathetic nervous system and the duodenum. Newer concepts of physiology and pathology in relation to surgery are presented and discussed. In no department has the old work been allowed to stand. It is difficult to exaggerate the satisfaction one feels in reviewing such a work. It is complete without being elaborate; conciseness and clearness of thought characterize it throughout and the index and cross references contribute much to the ease of quick consultation.

FORBES.

ILLUSTRATIVE ELECTROCARDIOGRAPHY. By Joseph H. Bainton, A.B., M.D. Attending Physician and Chief of the Cardiac Clinic, Morrisania City Hospital, New York City, etc. and Julius Burstein, A.B., M.D., Associate Electrocardiographer, Morrisania City Hospital, New York City, etc. 257 pages. \$5.00. D. Appleton-Century Company, Incorporated, New York and London, 1935.

There are one hundred plates in this book illustrating every type of irregularity, and such conditions as coronary thrombosis or myocardial degeneration, in which the electrocardiograph is of great importance. The diagnosis and detailed explanation of each plate is given on the opposite page. The explanations are brief but complete, and theoretical considerations or hypothetical explanations are eliminated. It is thus far the best monograph on this subject for all even mildly interested in electrocardiography. It could, perhaps, be improved by making the records actual size, instead of reducing them to two thirds.

VON PHUL.

A TEXTBOOK OF GYNECOLOGY. By Arthur Hale Curtis, M.D., Professor and Head of the Department of Obstetrics and Gynecology, Northwestern University Medical School, etc. Second Edition, reset. 493 pages, with 300 original illustrations, chiefly by Tom Jones. Cloth, \$6.00 net. Philadelphia and London: W. B. Saunders Company, 1934.

This volume is based largely on a record of personal experiences. The essentials of gynecology are included, with

EFFECTS OF HYPERPYREXIA PRODUCED BY RADIANT HEAT IN EARLY SYPHILIS. The observations of Norman N. Epstein and Maurice Cohen, San Francisco (*Journal A.M.A.*, March 16, 1935), on the effects of hyperpyrexia on the lesions and clinical course of early syphilis indicate that artificially produced fevers of from 39 C. (102.2 F.) to 40.5 C. (104.9 F.) and maintained for a period of six or seven hours do not sterilize the human body of *Spirochaeta pallida*. This is shown by three clinical recurrences that developed after the hyperpyrexia treatments had been discontinued. The fact that the patients who had strongly positive blood Wassermann and Kahn tests on entry showed no permanent change after hyperpyrexia would indicate that the infection had not been greatly affected. In the hyperpyrexia treatments as given in this work, the optimal temperature of 40 C. (104 F.) is not obtained in all the tissues of the body. The temperature of the skin of the uncovered portion of the body, that is, the face, is lower than that of the covered parts of the body at the height of the treatment, and probably never exceeds 39 C. (102.2 F.). Lesions on the face regressed much more slowly than those on the covered parts of the body. Sampson found that the temperature of the venous blood in the median basilic vein rose more slowly than the other tissues and did not exceed 39.4 C. (102.9 F.), even when the oral temperature was 40.7 C. (105.3 F.). In general, the venous blood remained from 1 to 3 degrees C. below the oral temperature. The temperature of the subcutaneous tissue also remained considerably below the oral temperature. The temperature of the intramuscular tissue exceeded the oral temperature by from 0.8 to 1.4 degrees C., and the rectal temperature tended to approach these ranges. The prompt disappearance of *Spirochaeta pallida* from lesions exposed to a high temperature substantiates the view that this organism can be destroyed by temperatures between 40 C. (104 F.) and 41 C. (105.9 F.). If a method could be devised that would raise the temperature of all the tissues of the body to a proper height, the eradication of early syphilis by this means might be accomplished. The authors give a description of a method of inducing hyperpyrexia by the use of blankets alone. Its simplicity and the fact that expensive equipment is not needed should increase the availability of this mode of therapy. The treatment given in this way has been less exhausting to the patient than other methods that they have used.

TWO CARDIAC COMPRESSION TRIADS. Claude S. Beck, Cleveland (*Journal A.M.A.*, March 2, 1935), points out that lesions of the pericardium produce either acute or chronic compression of the heart. In this respect the intrapericardial-lesion producing compression of the heart is exactly similar to the intracranial lesion producing either acute or chronic pressure on the brain. The intrapericardial lesion, like the intracranial lesion, produces clear and distinctive earmarks for recognition. In the case of the heart the earmarks for both acute and chronic compression can be reduced to three essential components. The acute cardiac compression triad consists of (1) a falling arterial pressure, (2) a rising venous pressure and (3) a small quiet heart. All other clinical manifestations of acute compression are secondary to this triad. The chronic cardiac compression triad consists of (1) a high venous pressure, (2) ascites and (3) a small quiet heart. All other clinical manifestations of chronic compression are secondary to this triad. Cardiac compression should be regarded as diametrically opposite to cardiac dilatation. Not only are the triads of acute and chronic compression useful in diagnosis but, emphasizing as they do the mechanical aspects of two large groups of disorders, they should be useful in determining the nature of the treatment that should be given. The treatment of such mechanical disturbances obviously is surgical. Many of these compression syndromes are recognized as surgical lesions. The question arises as to whether or not some of the lesions in the nonsurgical group can be placed in the surgical group. Perhaps some of the cases of spontaneous rupture of ventricles and auricles could be saved by operation. Undoubtedly the cases of acute and chronic compression of the heart offer opportunities for surgical intervention, and diagnosis is imperative. When the diagnosis is in doubt, exploratory pericardiectomy should be regarded as a justifiable procedure.

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the exclusion of superfluous matter. The book is profusely illustrated, thus being of great assistance in portraying surgical procedures. There are striking colored illustrations. Realizing the importance of gonorrhea as a basis of much pelvic pathology, diseases of the female genitalia caused by it are considered in the first two chapters. Pelvic infections, with the resulting forms of cellulitis, are discussed in sufficient detail. Tumors of the uterus are described and illustrated with clear and descriptive data of surgical operations. Displacements and disturbances of function are duly considered. The essentials of gynecologic practice are offered in this one volume in a form convenient for ready reference, with many timely suggestions.

BEE VENOM THERAPY. *Bee Venom. Its Nature and Effect on Arthritic and Rheumatic Conditions.* By Bodog F. Beck, M. D., 238 pp., \$5.00. D. Appleton-Century Company, Inc., New York and London, 1935.

The author states that treatment by injectable bee venom, almost unknown in the United States, is extensively employed in European countries. While an age-old nostrum in the hands of the laity, its scientific application has remained almost an unexplored field. The author cites many instances of individuals long disabled from rheumatism receiving relief from this method of treatment. Reviewing the history of this subject, its therapeutic applications are cited from many historical records. The use of animal venoms, especially those of snakes, have been reported as successful in the treatment of many diseases, such as epilepsy, leprosy, cobra venom for cancer, and other equally fantastic applications. The author states that formic acid is not the active principle in bee venom, as has been often stated. Its virtue is said to depend on both neurotoxic and hemorrhagic properties, the latter being stated to have characteristics similar to those of histamine, which has been recommended in the treatment of arthritic conditions. It is stated that hemorrhagin, a component of bee venom, dilates capillaries, making them permeable to blood, thereby accelerating the circulation, enabling the blood cells to migrate into the tissues. Methods of preparation and demonstration are presented, with suggestions of their applicability.

THE CRIPPLED AND DISABLED. *Rehabilitation of the Physically Handicapped in the United States.* By Henry H. Kessler, 337 pp., \$4.00, Columbia University Press, New York, 1935.

The announced purpose of this book is to study legislation in the United States as it affects the vocational adjustment of disabled persons. Application of some of the provisions of these laws may be helpful in improving the economic condition of the disabled. Special sections deal with the child cripple, the industrially disabled, the war disabled, the chronically disabled and those disabled by defects of special senses. One is astounded at the figures presented of the number of disabled individuals in all countries of the world. Their handicaps for existence are described. In spite of the prejudice which limits the activities of these individuals, many fields are possible for economic independence, especially after results of rehabilitation. The author compares methods employed in the different states, emphasizing those of value, and criticizing the weakness of others. It is demonstrated that many handicapped workers can be reinstated in their former jobs, while others may be qualified

to competently fill certain positions. Any one connected with social welfare work and interested in improving the condition of the handicapped will find much of value and interest in this volume.

USEFUL DRUGS. *A List of Drugs Selected to Supply the Demand for a Less Extensive Materia Medica, With a Brief Discussion of Their Actions, Usage and Dosage.* Prepared Under the Direction and Supervision of the Council on Pharmacy and Chemistry of the American Medical Association. Edited by Robert A. Hatcher, Ph.M., Sc.D., M.D., and Cary Eggleston, M.D. Ninth Edition, 203 pp., sixty cents. American Medical Association, Chicago, 1934.

The United States pharmacopeia and National formulary include all authorized drugs and medicinal properties employed in medical practice. Some of these are obsolete and a large number are never used in actual practice. This book culls out of these large volumes the drugs which are employed in daily practice, and which are most useful in prescription and application. Under each drug are enumerated its properties, incompatibilities, actions, uses and dosage. Not only is it invaluable for instruction of the student and in preparation for examinations, but it is an ideal every day hand book for the practitioner, imparting information which is applicable for his daily use.

THE 1934 YEAR BOOK OF PEDIATRICS. Edited by Isaac A. Abt, D.S.C., M.D., Professor of Pediatrics, Northwestern University Medical School, and Arthur F. Abt, B.S., M.D., Associate in Pediatrics, Northwestern University Medical School. 541 pp., \$2.25. The Year Book Publishers, Inc., Chicago.

This book is a most welcome addition to the physician's desk volumes. As is the custom, this year's edition consists of abstracts of the world's foremost pediatric articles published between November, 1933, and November, 1934. The authors have succeeded in showing the trend of pediatric thought and procedure. Excellent abstracts are presented regarding abdominal pain, Von Gierke's disease, ascites, thrombosis of the splenic vein and mesenteric cysts. Enlightening are the abstracts of articles dealing with infectious diseases, especially in reference to the use of prophylactic vaccines and toxoids. The reports concerning progress in anterior poliomyelitis and whooping cough immunization should appeal to most readers. This book should do much for the general practitioner by way of clearing his understanding of the many procedures recently devised by our pediatric research workers.

WADE.

THE 1934 YEAR BOOK OF UROLOGY. Edited by John H. Cunningham, M.D., Associate in Genitourinary Surgery, Harvard University Postgraduate School of Medicine. 450 pp., \$2.25. The Year Book Publishers, Inc., Chicago, 1934.

The scope of material covered by this book should be interesting to any one practising medicine. The literature and abstracts are so presented that one enjoys reading them. Many controversial opinions are aired with newer ideas of treatment, for example, acute pyelitis, hydronephrosis, cystic kidney, nephroptosis, etc. The forty-two pages dealing with transurethral operations tell the diversified opinions on the subject with humorous summary by the editor. The chapter on the prostate should not only be interesting but instructive to any medical man. Even the last twenty pages, devoted to gonorrhea, bring out a few enlightening facts though nothing new in the treatment of the disease.

RIDLON.

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RECENT ADVANCES IN OUR KNOWLEDGE OF THE THYROID *

JOSEPH L. MILLER, M.D.
CHICAGO, ILL.

In the normal thyroid the acini are lined with flat or cuboidal epithelial cells; the remainder of the acinus is filled with colloid. It is a function of these cells to combine a portion of the inorganic iodine in the blood stream with protein which is then stored in the colloid as thyroglobulin. The amount of this active organic iodine, produced and stored, depends on the needs of the organism and the amount of available iodine.

In toxic goiter there are marked histologic changes in the acini. There is decided hyperplasia and hypertrophy of the epithelial cells. They become much elongated, columnar in type, until they may eventually fill the acini, the colloid diminishing. These histologic changes can best be interpreted as a response to a demand of the organism for more active iodine. As shown by the gradual absorption of colloid with its store of thyroglobulin and the hypertrophy and hyperplasia of the epithelial cells, it is an effort to convert more inorganic iodine into the active form. As a result of this increased activity, there is an increase in the organic iodine in the blood. It is thought that the symptoms in toxic goiter are due to the excessive amounts of organic iodine in the blood stream. A function of the thyroid, acting through the hypophysis, is to maintain oxidation at a certain level. The function of the

thyroid can best be pictured by comparing the normal individual with a cretin.

There is a close relationship between the incidence in any region of simple and toxic goiter. When simple goiter is prevalent, we find a high incidence of toxic goiter; where simple goiter is infrequent, there is a very low incidence of toxic goiter. McClendon¹ determined the iodine content of many varieties of seaweed on the coast of Japan, where dried seaweed is a staple food. He found that all varieties contain large amounts of iodine. The incidence of goiter in Japan he estimates as about one per million of population. We may infer from this that adequate ingestion of iodine by the entire population from childhood on would abolish goiter. In Switzerland, where the iodine content of water and vegetables is very low, both types of goiter are extremely prevalent.

Contradictory as it may appear, there is abundant evidence that iodine may stimulate a simple goiter and convert it into one of the toxic type. Webster² showed that a single dose of iodine (1.5 mg.) given to a goiterous rabbit was followed by an increase in its basal rate which reached its height in nine to eleven days and which returned to normal within forty days. If a single dose of 3.8 mg. was given, there was a still greater increase in the basal rate which reached its height in twenty-five days. Loeser,³ working with rabbits, states that large doses of

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2. Webster B.: Studies in Reaction of Simple Goitre to Iodine, Bull. Johns Hopkins Hosp., 45:215, 1929.

3. Loeser, A.: Der Einfluss des Ovariums auf die Sekretion des thyreotropen Hormons der Hypophyse, Klin. Wchnschr., 13:766-767, 1934.

* Read before a Meeting of The Chicago Society of Internal Medicine, Chicago, Ill., Oct., 1934.

iodine stimulate the thyroid while small doses have an inhibitory effect.

The Swiss claim that, if they were to place the same amount of iodine in table salt as we use in this country, it would increase the incidence of toxic goiter. Swiss iodized salt contains 1/40th as much iodine as is present in our iodized salt.

Means and his colleagues demonstrated that, in preparing patients with toxic goiter for operation, the maximum result is obtained with 6 mg. of iodine daily. It has been shown that when large amounts are given the excess is rapidly eliminated in the urine. We have followed Means' advice (although we have used 10 mg. daily) for the past four years in preparing patients for operation and have been well pleased with the results.

The iodine content of the normal thyroid shows very wide variation; 5 to 6 mg. is a fair average. Oswald found practically the same iodine content in normal glands in Sweden, where a large amount of sea food is consumed, as he did in those in Switzerland.

A toxic goiter, as a rule, contains a lower percentage of iodine than a normal gland. This may be explained by the relatively small amount of colloid in the gland.

There is a small amount of iodine in normal blood. Curtis, Davis and Phillips⁴ found the average amount in normal blood in Chicago to be 0.012 mg. per 100 cc. of blood, or a total amount in the blood of less than 1 mg.

In the blood, iodine is present in two forms, alcohol soluble inorganic iodine and alcohol insoluble organic iodine, the latter being the active form whose source is thyroglobulin. In toxic goiter there is a great increase of organic iodine in the blood. This is readily explained by the increased discharge of colloid from the acini and the increased activity of its epithelial cells. Bier and Roman⁵ report that in toxic goiter 75 to 85 per cent of the iodine in the blood is organic. If iodine is administered to a person with toxic goiter, the amount of inorganic iodine in the blood is increased; the organic iodine decreased. The lessened amount of organic iodine can be explained by the regression of the epithelial hypertrophy and hyperplasia with consequent lessened activity of the gland and of restoration of colloid. Within an hour after subtotal thyroidectomy there is a great reduction in the organic iodine in

the blood. Curtis and Phillips⁶ do not believe this is due directly to the surgical manipulation of the gland as surgical operations distant from the thyroid may be followed by an increased output of iodine in the urine quite as great as that observed after subtotal thyroidectomy.

Schaffer⁷ studied the channels through which iodine is eliminated in toxic goiter. The output might be two to three times the intake. The chief channels of elimination were the skin and bowel, especially the latter. In some cases the stool contained ten times the normal amount of iodine.

THE ACTIVE PRINCIPLE OF THE THYROID

When Kendall isolated from the thyroglobulin of the thyroid crystalline thyroxine, an iodine protein compound, it was thought that this was the sole active principle. More recently, however, this has been questioned. Kendall in 1928 stated that it was impossible to explain the activity of fresh or desiccated thyroid on the basis of its thyroxine content. He claimed that the organic iodine in the residue after extracting thyroxine was inert as it would not raise the basal rate in myxedema. Others have observed that this residue hastens the maturing of tadpoles, but that it is not calorogenic. Romeis⁸ found that this effect on tadpoles was only obtained after enormous doses.

It has been shown that the organic iodine in the residue after extracting thyroxine is in the form of an iodine protein combination known as diiodotyrosine. Crystalline diiodotyrosine is not only noncalorogenic; it actually reduces the basal rate in toxic goiter and has been used quite extensively in Germany in place of iodine in preparing patients for operation. Gutman, Sloan, Gutman and Palmer⁹ concluded that the reported good results from diiodotyrosine were due solely to its iodine content. Elmer¹⁰ has come to the same conclusion after experimental animal investigation.

Diiodotyrosine in crystalline form is chemically very closely related to thyroxine. Canzanelli, Harington and Randall state that the constitution of thyroxine is formed by the oxidative coupling of two molecules of 3:5 diiodotyrosine. Thyroxine contains 65 per cent of iodine, diiodotyrosine 60 per cent. They both contain tyrosine. Diiodotyrosine in its native state in the thyroid is calorogenic as the cal-

4. Curtis, G. M., Davis, C. B. and Phillips, F. J.: Significance of Iodine Content of Human Blood, *J. A. M. A.*, 101:901-905, Sept. 16, 1933.

5. Bier, A. and Roman, W.: Das Wasen der postoperativen Reaktion beim Morbus Basedown nach Thyreoidectomy, *Ztschr. f. Klin. Med.*, 118:15-48, 1931.

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7. Schaffer, L.: The Channels Through Which Iodine is Eliminated from the Body, *Klin. Wehnschr.*, 12:1285, 1933.

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9. Gutman, A. B., Sloan, L. W., Gutman, E. B. and Palmer, W. W.: The Role of Diiodotyrosine in Hyperthyroidism, *J. A. M. A.*, 101:256-259, July 22, 1933.

10. Elmer, A. W.: Diiodotyrosine and Thyroid Function, *Quar. J. Exper. Physiol.*, 24:95-99, Feb., 1934.

11. Canzanelli, A., Harington, C. R. and Randall, S. S.: Configurative Relationship of Thyroxine and Tyrosine, *Biochem. J.*, 28:68-72, 1934.

origenic activity of desiccated thyroid is proportional to its total organic iodine content. Apparently in isolating it in crystalline form the character of its action is changed.

Means, Lerman and Salter¹² have demonstrated that the calorogenic action of the desiccated thyroid depends upon its total organic iodine content rather than upon its thyroxin content. In desiccated thyroid, thyroxin accounts for only 23 per cent of the total organic iodine, leaving 77 per cent in the form of diiodotyrosin.

Matthews¹³ makes the prophetic statement that it is still doubtful whether thyroxin is the principle set free by the gland, since there is a delay of about twenty-four hours in the action of thyroxin after intravenous injections and, except in large dosage, it is inactive by mouth. Furthermore, it has never been found in the blood or lymph. This writer goes on to say that a peptid of thyroxin is the form secreted by the gland.

Harington and Salter¹⁴ reported that by proteolytic digestion of thyroxin they were able to obtain a substance which proved to be thyroxin in peptid combination. It contained 49 per cent of iodine, compared with 65 per cent in thyroxin. This peptid combination was soluble and active when taken by mouth. Thompson, Nadler, Thompson and Dickie¹⁵ report that thyroxin, which is insoluble in distilled water, is soluble in alkalis and that a solution so prepared has the same activity when taken by mouth as thyroxin peptid.

Means, Lerman and Salter¹⁶ conducted some interesting clinical investigations on patients with spontaneous myxedema to determine whether or not there was any difference between the action of crystalline thyroxin and thyroxin peptid, allowing for the difference in iodine content. The peptid was given by mouth, the thyroxin intravenously. They found the calorogenic activity of the two substances to be practically the same. This makes it highly probable that the native product formed in the thyroid is the soluble thyroxin peptid and not pure thyroxin.

Attention has already been called to the relatively small amount of organic iodine that is present in

the form of thyroxin and the relatively large amount in the form of diiodotyrosin. As this latter is active in desiccated thyroid and not in the crystalline form, it is highly probable that in its native state in the thyroid it is in peptid combination.

Lerman and Salter¹⁷ have thrown some interesting light on diiodotyrosin. Beginning on the basis that thyroxin iodine does not represent the entire caloric activity of the thyroid and that thyroxin in its active state in the thyroglobulin is in peptid combination, they endeavored to determine whether the same might not be true of diiodotyrosin. They digested thyroglobulin with pepsin and hydrochloric acid. The thyroxin fraction, in the form of thyroxin peptone, based on its iodine content, lost none of its activity; the diiodotyrosin peptone was inactive, showing how readily its activity is lost. They believe that diiodotyrosin is calorigenically active only when it is a part of the thyroglobulin molecule.

SERUM LIPASE

Bauer¹⁸ first called attention to the marked reduction of serum lipase in toxic goiter. Balo, Bach and Neufeld¹⁹ reported that rabbits receiving daily injections of thyroxin showed a marked reduction in serum lipase and that this was proportional to the degree of intoxication. They obtained from the pancreas of a pig by ether extraction a substance which, given by mouth to rabbits, prevented thyroxin death, presumably by increasing the serum lipase. This substance was heat resistant and did not contain albumin.

Anselmino and Hoffman²⁰ succeeded in isolating from fetal blood by ether extraction a substance which neutralized the action of thyroxin. They were able to increase the antithyroidal action of the blood one thousand fold.

This substance was found in relatively large amounts in fetal blood serum. Adult blood contains much less. The brain and liver of man contain relatively large amounts. This antithyroidin not only affects the basal rate but also reduces the escape of glycogen from the liver. They treated six patients suffering from toxic goiter with this substance per os with good results.

12. Means, J. H., Lerman, J. and Salter, W. T.: Role of Thyroxin Iodine and Total Organic Iodine in Calorogenic Action of Whole Thyroid Gland, *J. Clin. Investigation*, 12:683-688, July, 1933.

13. Matthews, A. P.: *Physiological Chemistry*, 6th Ed. (1931), p. 687, William Wood, New York.

14. Harington, C. R. and Salter, W. T.: Isolation of 1-Thyroxin from Thyroid Gland by Action of Proteolytic Enzymes, *Biochem. J.*, 24:456-471, 1930.

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16. Vide 12 supra.

17. Lerman, J. and Salter, W. T.: Calorogenic Action of Thyroid and Some of Its Active Constituents, *Endocrinology*, 18:317-332, May-June, 1934.

18. Bauer, J.: Ueber das fettspaltende Ferment des Bluteserums bei Krankhaften Zuständen, *Wien. Klin. Wchnschr.*, 25:1376-1380, 1912.

19. Balo, J., Lovas, L., Bach, E. and Neufeld, L.: Die antagonistische Wirkung eines neuen Pankreasextraktes auf die Thyroxinvergiftung, *Arch. f. exper. Path. u. Pharmacol.*, 165:594-613, 1932.

20. Anselmino, K. J. and Hoffman, F.: Die pankreatrope Substanz aus dem Hypophysenvorderlappen, *Klin. Wchnschr.*, 12:1435-1436, 1933.

Hoffman²¹ verified these results, using an extract obtained from Anselimo. He repeated some experiments on rabbits, found a marked reduction in serum lipase after thyroxin, and was able to bring this back to normal with Anselimo's blood extract. He fed rabbits for six days on the protective blood extract and then gave them thyroxin, but it did not have any toxic effect on the animal or lower the serum lipase. He fed rabbits olive oil for six days, then gave thyroxin and found its action was considerably delayed.

Eitel and Loeser²² report that sheep serum given intramuscularly to guinea pigs inhibits the action of the thyrotropic hormone of the hypophysis. It will also inhibit in guinea pigs the action of desiccated thyroid. Sheep serum, mixed with thyroid and fed to tadpoles, prevents hyperinvolution. Serum obtained from thyroidectomized sheep is inactive.

Dirner²³ using the basal rate as an index, was unable with rats to confirm the findings of either Balo or Anselimo.

BLOOD CHOLESTEROL

Blood cholesterol is markedly reduced in toxic goiter and increased in myxedema. This subject, as far as I can determine, has not attracted much attention.

Turner²⁴ reported that herbivorous animals, given cholesterol or cholesterol rich foods, developed atherosclerosis of the aorta. If rabbits so fed were given 0.4 gm. of desiccated thyroid, the arterial changes did not develop. This antagonistic action of thyroid extract toward cholesterol offers an interesting field for further investigation.

HYPOPHYSIS

Of the recent advances made in our knowledge of the thyroid, the most striking is the close relationship between this gland and the anterior lobe of the hypophysis. Anderson and Collip²⁵ report that in thirty-four cases of Simmond's disease in the literature all show atrophy and sclerosis of the thyroid, indicating that atrophy of the hypophysis induces atrophy of the thyroid. When the hypophysis is hyperplastic, as in acromegaly, the thyroid becomes overactive with consequent increase in the basal rate.

The hypophysis apparently is the regulator of the thyroid, increasing or diminishing its activity, depending upon the needs of the organism. Removal of the anterior lobe of the hypophysis is followed by atrophy of the thyroid. Following thyroidectomy the hypophysis becomes hyperactive, in a futile effort to regulate cellular oxidation. The injection of an extract from the anterior lobe stimulates the thyroid to hyperactivity with increase in basal rate and the signs and symptoms of toxic goiter.

Loeb²⁶ reported that the long continued injection of an anterior lobe extract (seven to ten weeks) induced a return of the thyroid to normal activity. Krayer²⁷ extirpated the cervical sympathetic in guinea pigs and several days later injected anterior lobe extract and found that the thyroid responded in the same degree as in the normal animal.

Siebert and Smith²⁸ report that they were able to produce hyperplasia of the thyroid by giving a specially prepared extract by mouth. Loeser²⁹ reports hyperplasia of the thyroid after removal of the ovaries, due, he believes, to increased thyrotropic activity of the anterior lobe of the hypophysis.

It is to Collip and his colleagues that we are most indebted for advancing our knowledge of the relationship between the thyroid and the anterior lobe of the hypophysis. Collip and Anderson³⁰ worked with a specially purified extract of the anterior lobe containing the thyrotropic hormone. When this was given to normal white rats, the stimulating effect of the hormone was of short duration. The maximum increase in basal rate was reached by the eighth day, and the metabolic rate fell to normal within two or three weeks. If the extract was continued two or three weeks longer, the basal rate fell far below normal and reached the same level as is observed in an untreated hypophysectomized rat. Furthermore, the thyroid became atrophied. The average rate of the 118 rats so treated was minus 26. Even very large doses of the thyrotropic hormone would not stimulate the thyroid. Anderson and Collip showed that an increase in the blood of organic iodine appeared immediately after the first injection of the hormone.

21. Hoffman, M. H.: Effect of Thyroxin and Antithyroid Substances on Serum Lipase, *Arch. Int. Med.*, 54:427-435, Sept., 1934.

22. Eitel, H. and Loeser, A.: The Inhibitory Action of Normal Sheep Serum on Experimental Goiter, *Klin. Wchnschr.*, 13:1742, 1934.

23. Dirner, L.: *Arch. f. Exper. Path., u. Pharmacol.*, 176:190, 1934.

24. Turner, K. B.: Studies on Prevention of Cholesterol Atherosclerosis in Rabbits; Effects of Whole Thyroid and of Potassium Iodide, *J. Exper. Med.*, 58:115-125, July, 1933.

25. Anderson, E. M. and Collip, J. B.: Studies on Physiology of Thyrotropic Hormone of Anterior Pituitary, *J. Physiol.*, 82:11-25, Aug. 24, 1934.

26. Loeb, L.: The Thyroid, Iodine and the Anterior Lobe of the Hypophysis, *Klin. Wchnschr.*, 11:2121, 1932.

27. Krayer, O.: Ist die Integralität der sympathischen Schilddrüseninnervation notwendig für die thyreotropen Wirkung des Hypophysenvorderlappens? *Arch. f. exper. Path. u. Pharmacol.*, 171:473-479, 1933.

28. Siebert, W. J. and Smith, R. S.: Effect of Potassium Iodide on Basal Metabolism in Guinea Pigs. *Proc. Soc. Exper. Biol. and Med.*, 27:629-630, April, 1930.

29. Loeser, A.: Der Einfluss des Ovariums auf die Sekretion des thyreotropen Hormones der Hypophyse, *Klin. Wchnschr.*, 13:766-767, 1934.

30. Collip, J. B. and Anderson, E. M.: Production of Serum Inhibitory to Thyrotropic Hormone, *Lancet*, 1:76-78, April 14, 1934.

In rats with simple colloid goiter, receiving the hormone, histologic changes in the thyroid developed much more rapidly and the basal rate reached a much higher level than in rats without goiter treated in the same manner. They then endeavored to determine the cause of this resistance to the hormone. They found that, when the blood serum of such a resistant rat was injected into a hypophysectomized rat and the animal given the thyrotropic hormone simultaneously, this hormone had no effect even when the dosage was increased to two hundred times the amount required to produce hyperplasia in an animal that had not received the serum. Saline extracts from the liver and spleen of a resistant rat also protected from this hormone. They reported that, when a hypophysectomized rat received the resistant serum and simultaneously the thyrotropic hormone, there would be a temporary hyperplasia of the thyroid, but no increase in basal rate. Rats whose blood contained this inhibiting substance, if given $\frac{1}{4}$ grain of thyroid extract, would respond with an increase in basal rate, indicating that this antagonistic substance acted directly on the thyrotropic hormone.

Anderson and Collip³¹ made a further report on their experimental studies of this inhibiting substance. A horse was given the thyrotropic hormone for six weeks. Its serum contained this inhibiting substance. They found that this resembled insulin in its solubility. They prepared from the serum a protein-free active extract.

They are still undecided as to the place where this antagonistic substance is formed. They have, however, ruled out the hypophysis, as the substance is found in hypophysectomized animals. This antagonistic substance is very unstable and rapidly loses its potency after the serum is withdrawn.

Loeb³² reported that iodine stimulates the thyroid in guinea pigs. The maximum hyperplasia is reached in three weeks and then the action of the iodine is reversed and the hyperplasia gradually subsides. In a later communication Loeb³³ took the blood serum from such animals and injected it into guinea pigs and at the same time anterior lobe hormone, and found it did not inhibit the activity of the hormone. He claimed that the stimulating effect of the anterior lobe hormone on the ovary also stopped after long continued use of the hormone.

EXPERIMENTAL TOXIC GOITER

It has been shown that the thyrotropic hormone of the hypophysis will produce toxic goiter in ani-

mals. Toxic goiter has been produced experimentally by other means. Webster and Chesney³⁴ observed that rabbits fed largely on cabbage might develop thyroid hyperplasia. Marine, Baumann, Webster and Cipra³⁵ attempted to produce goiter in rabbits by feeding cabbage. Four rabbits were fed on winter cabbage, from which the juice had been expressed, and within eleven days all had palpable thyroids. If the diet was continued, the animals developed the clinical picture of toxic goiter, including exophthalmos. Cabbage juice was much less active than the desiccated cake. Kohlrabi cake was also active in this respect. They found that certain foods, as fresh alfalfa or lawn grass, fed to rabbits after the cabbage had been discontinued, would hasten involution of the thyroid. Old alfalfa had no effect. Steamed skunk cabbage cake was much more efficient in hastening involution than fresh alfalfa, probably due to its high iodine content.

This same group of investigators³⁶ made further studies along this line. They reported that all members of the cabbage family contain mustard oil, in which there is thiocyanate. Marine and Rosen³⁷ were able to produce in rabbits toxic goiter with exophthalmos by the injection of very small doses of methyl cyanide. The hyperplasia here they considered was due to an effort to overcome the disturbance of cellular oxidation created by the cyanide. As one function of the secretion of the thyroid is to maintain cellular oxidation at a certain level, we may infer that disturbance of oxidation if continued long enough will lead to hyperplasia of the thyroid.

Marine reports that thyroidectomized rabbits given cyanide develop exophthalmos. He was able to prevent this by giving the animal iodine. He was also able to produce exophthalmos in thyroidectomized rabbits by using the thyrotropic hormone of the anterior lobe of the hypophysis. Removal of the superior cervical ganglion would prevent exophthalmos. Marine and Rosen³⁸ report that young thyroidectomized rabbits given methyl cyanide will not develop exophthalmos, if fed on a diet of green alfalfa.

There have been several reports indicating that, following subtotal thyroidectomy in man when the

31. Anderson, E. M. and Collip, J. B.: Preparation and Properties of an Antithyrotropic Substance, *Lancet*, 1:784-786, April 14, 1934.

32. Vide 26 supra.

33. Loeb, L.: *Science*, 80:251, 1934.

34. Webster, B. and Chesney, A. M.: Endemic Goiter in Rabbits; Effects of Administration of Iodine, *Bull., Johns Hopkins Hosp.*, 43:291-308, Nov., 1928.

35. Marine, D., Baumann, E. J., Webster, B. and Cipra, A.: Occurrence of Antigoitrous Substances in Plants, *J. Exper. Med.*, 57:121-137, Jan., 1933.

36. Marine, D., Baumann, E. J., Spence, A. W. and Cipra, A.: Further Studies on Etiology of Goiter, with Particular Reference to Action of Syanides, *Proc. Soc. Exper. Biol. and Med.*, 29:772-775, March, 1932.

37. Marine, D. and Rosen, S. H.: Exophthalmos in Thyroidectomized Guinea Pigs by Thyrotropic Substances of Anterior Pituitary and Mechanism Involved, *Proc. Soc. Exper. Biol. and Med.*, 30:901-903, April, 1933.

38. *Ibid.* Exophthalmos of Graves' Disease; Its Experimental Production and Significance, *Am. J. Med. Sc.*, 186:565-571, Oct., 1934.

basal rate has returned to normal or below, the exophthalmos progressed. This subject has been reviewed recently by Des Brisay.³⁹

The cause of toxic goiter in man is still an enigma. That it may be produced in animals by lowering cell oxidation appears logical. Hyperactivity of the thyroid can best be explained on physiologic grounds, as due to an increased demand of the organism for more active iodine. On the other hand, it has been shown repeatedly that a single dose of iodine in animals may be followed by increased activity of the thyroid and an increase in basal rate. There is also adequate evidence that a simple nodular goiter in man may be converted into a toxic type by the administration of rather large doses of iodine. Small doses of iodine in toxic goiter will produce marked histologic changes in the thyroid, indicating a reversal toward normal, with reduction in basal rate. Is it possible that the organ at fault in this disease might be the regulator of the thyroid, the hypophysis?

SUMMARY

The exciting cause of toxic goiter is an enigma. Viewed from the standpoint of pathologic physiology, it is a response on the part of the thyroid to supply the body with more active iodine.

The thyroid contains two hormones, chemically closely related and apparently similar in action. In their native state they are probably in peptid combination. Diiodotyrosin loses its activity when separated from the thyroglobulin molecule. Thyroxin appears to be active when in crystalline form.

Toxic goiter can be produced in certain laboratory animals by the injection of an extract from the anterior lobe of the hypophysis. The continued use of this extract leads to a fall in basal rate to a point far below normal. Coincident with this there is regressive change in the thyroid which may eventually become atrophic. The serum of such an animal contains an inhibitory substance which, when injected into an animal, inhibits the activity of the anterior lobe hormone.

In toxic goiter in man and in rabbits receiving thyroxin it is reported that there is a marked reduction in serum lipase. If the serum lipase can be maintained at the normal level, it inhibits the toxic action of thyroxin.

Toxic goiter has been produced in rabbits by giving small doses of methyl cyanide.

Rabbits maintained on a diet where cabbage is the chief constituent may develop the clinical picture of toxic goiter.

HEART DISEASE IN THE PACIFIC NORTHWEST*

AN ANALYTICAL STUDY OF MORTALITY AND MORBIDITY, WITH AN ANALYSIS OF FIVE HUNDRED FIFTY-SIX PRIVATE CASES

ROBERT L. KING, M.D.

SEATTLE, WASH.

Heart disease remains the paramount cause of death and has shown a dramatic unexplained increase (figs. 1, 2, and 3). In the United States the progressive rise in the death rate of cardiac disease from 116 per hundred thousand in 1900 to 223 per hundred thousand in 1932 has drawn widespread attention to the study of this highly important malady. This interest has been manifested by the investigation of the relative incidence in various geographic areas, as well as notable improvements in diagnostic and therapeutic methods.

In 1928 Coffen¹ of Portland presented certain statistical data for the Pacific Northwest. In an analytical study comprised of 3488 charity patients and 1673 private patients, he reported (1) hypertension to be the most frequent etiologic factor, (2) that goiter, which is endemic, existed in 6.1 per cent of cardiovascular patients, and (3) that acute rheumatic fever was rare (0.1 per cent). Statistics presented here are intended to be supplementary to those previously compiled and to afford further information about this immediate locality.

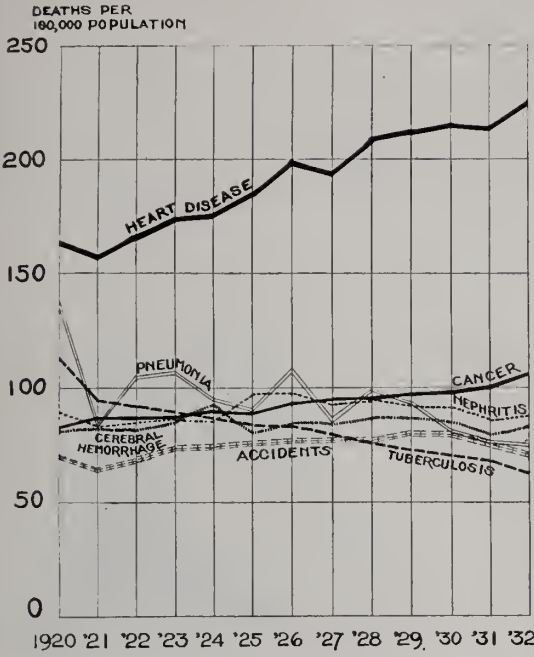
Our material consists of data obtained through the courtesy of the Bureaus of Vital Statistics of several states and the local hospitals and from a study of 556 private patients. Information obtained from the vital statistics compiled from death certificates and hospital records is subject to an appreciable degree of error. Since the same sources have been generally employed in other studies, it is obvious that the mortality rate for this locality is equally accurate. The determination of morbidity statistics from hospital records probably constitutes the greatest source of error, due to their incompleteness, vagueness and duplication. This, unfortunately, is particularly true of private hospitals, where there is often no routine systematized study of records made by the staff. Consequently this makes uniformity in diagnosis next to an impossibility. The data obtained by us from the private clinic records are the most accurate, since all of the patients were thoroughly studied from a diagnostic standpoint.

*From the Medical Department of The Mason Clinic.

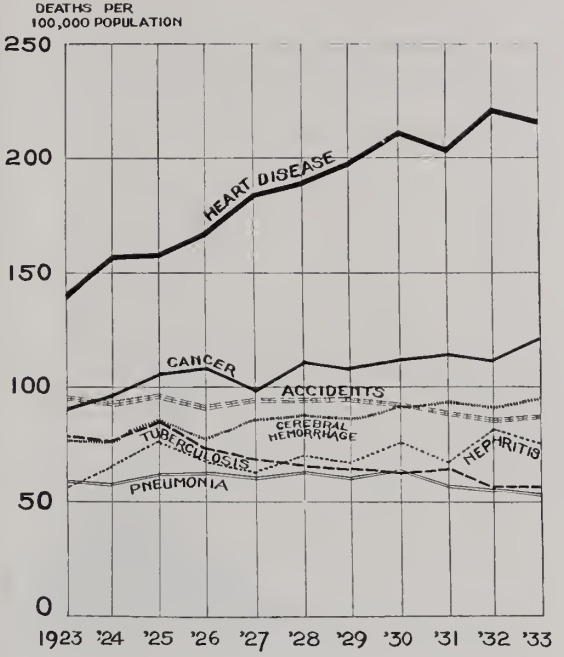
*Read before the Forty-fifth Annual Meeting of the Washington State Medical Association, Spokane, Wash., September 11-12, 1934.

1. Coffen, T. H.: Incidence of Heart Disease in Pacific Northwest, *Am. Heart J.*, 5:99-103, Oct., 1929.

39. Des Brisay, H. A.: Progressive Exophthalmos Following Thyroidectomy, *Canadian M. A. J.*, 31:389-392, Oct., 1934.



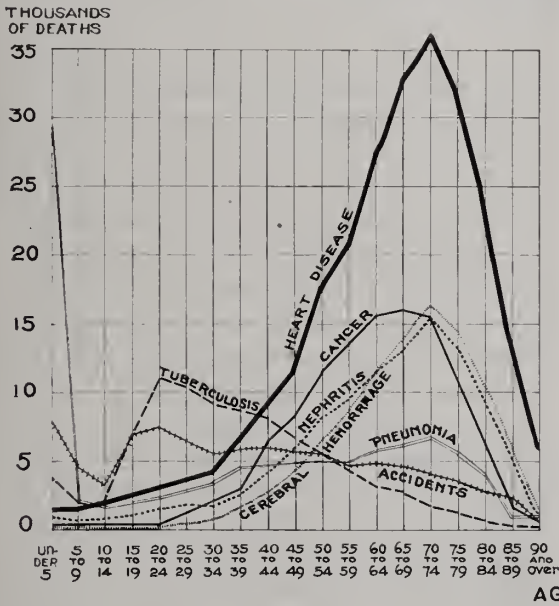
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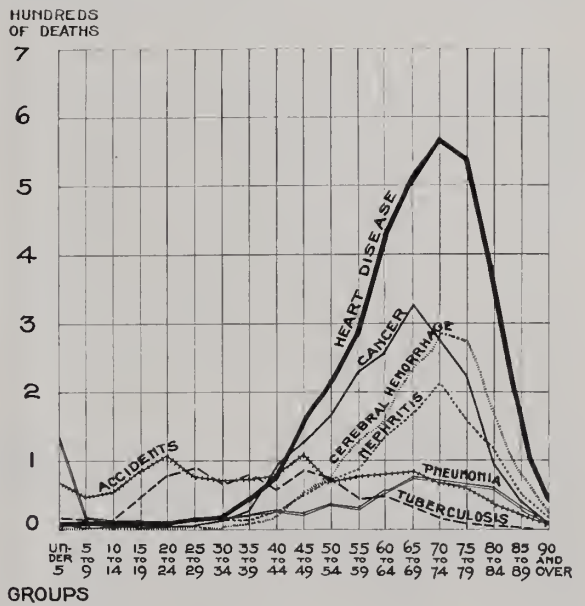
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Fig. 1. Graphs for (A)* the United States Registration Area and (B) the State of Washington demonstrate similar trends of the seven principal causes of death over 10-year periods.

* Figures taken from Whitney (reference 9).



A



B

Fig. 2. Comparative charts for (A)* the United States Registration Area and (B) the State of Washington show the distribution of deaths by 5-year age groups in 1930 and 1933 respectively. Heart disease, the most important cause of death, like cerebral hemorrhage and nephritis, reaches its highest peak in the 70 to 74 year period. The highest

incidence for cancer is between 65 and 69 years. Pneumonia appears as a less significant cause of death for the first 5-year period in the State of Washington. With the exception of accidents and tuberculosis, heart disease is the most common cause of death after the age of 10.

* Figures taken from Whitney (reference 9).

Tables and graphs have been prepared for the presentation of the statistical data. Reference is made in the following discussion for the sake of emphasis and comparison. Detailed repetition of figures and percentages is purposely avoided.

MORTALITY

In comparing the mortality rates for Washington, Montana and Idaho with those of the United States

Registration Area, there was in the case of the individual states a lower but closely paralleling increase from 1920 to 1932 (fig. 4). The same was true of Oregon until 1927, after which time the rates were consistently higher than those of the United States Registration Area (fig. 5). It is interesting to observe that in the past twelve years California has regularly had higher rates of mortality

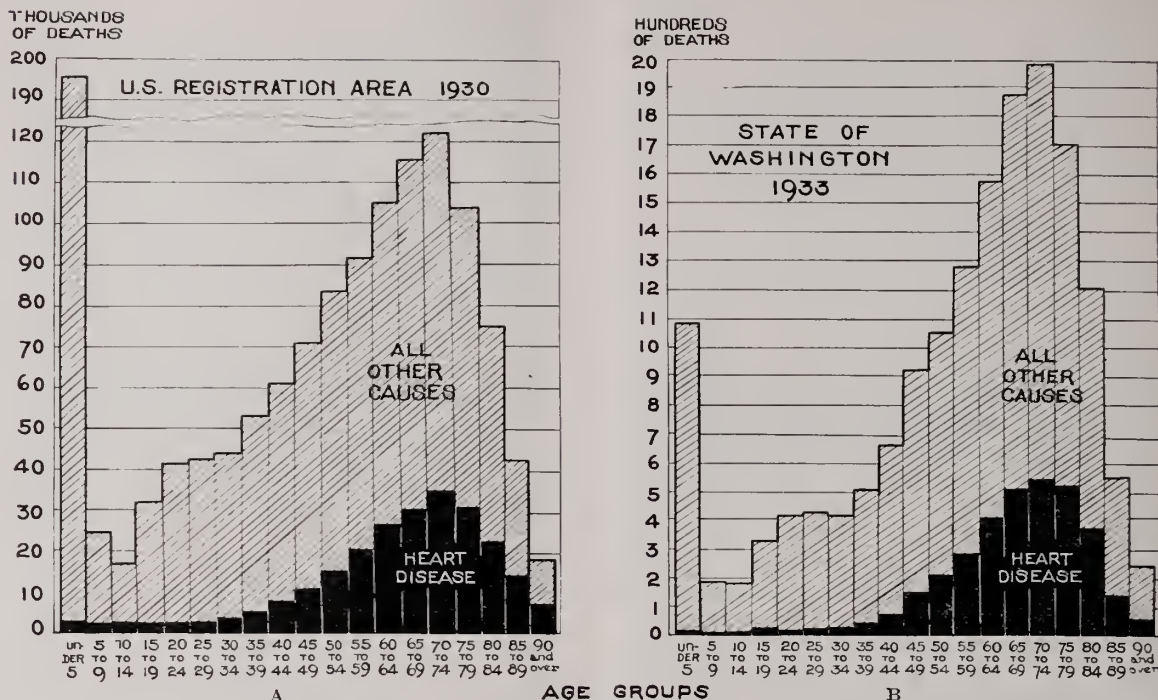


Fig. 3. The significance of heart disease as a cause of death as compared to all other causes of death by 5-year age periods in (B) the State of Washington closely parallels that of (A)* the United States Registration Area.

*Figures taken from Whitney (reference 9).

	1932	1930	1928	1926	1924	1922	1920
U.S. Registration Area	224	214	208	200	177	165	159
Washington	223	214	198	168	155	138	133
Oregon	240	235	216	190	170	160	168
Idaho	165	157	141	114	103	98	—
Montana	198	172	160	128	119	109	95
California	275	258	248	225	218	215	200

Fig. 4. Mortality rates per 100,000 from heart disease.

from heart disease than the states of the Pacific Northwest, and, furthermore, these rates have closely approximated those of the Northeastern states. Perhaps the higher rates of these states may be attributed to an increase in the average age of

the population and the migration of persons of the later decades of life from the other localities in search of a warmer and more equable climate. The low rates for Idaho have not been satisfactorily explained and should stimulate further investigation.

In obtaining a cross-section of the morbidity of heart disease in the city of Seattle, a study of records of 25,706 patients admitted to six hospitals was attempted (fig. 6). Of these patients, 6837 were designated by the respective hospitals as medical. The diagnoses were so numerous and in many instances so vague that correct and complete reclassification from the standpoint of etiology was impossible. Criteria for regrouping were those obviously used in the report from New York.² It seems that as a general rule patients admitted to private hospitals are predominantly surgical, which we found to be also true of the Seattle hospitals. The incidence of rheumatic heart disease in the Children's Orthopedic Hospital should not be misleading for only one-fifth of the

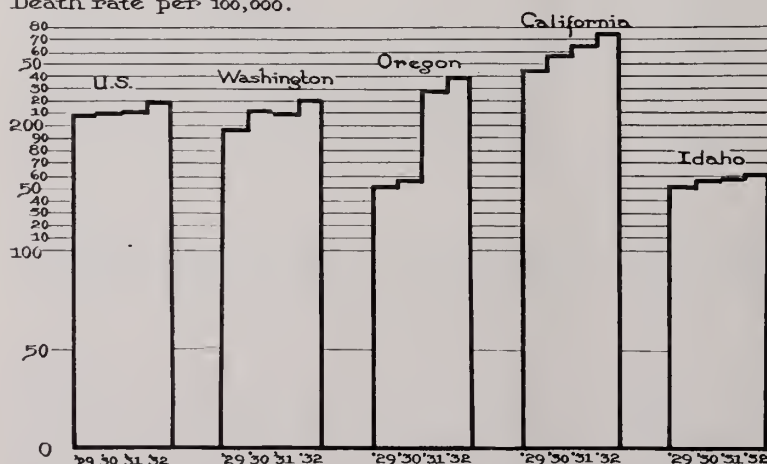


Fig. 5. Comparative death rates for U. S., Washington, Oregon, California and Idaho, 1929, '30, '31, '32.

This chart shows the importance of heart disease as a cause of death in the states of Washington, Oregon, California and Idaho as compared to the United States Registration Area for the years 1929 to 1932 inclusive.

There has been an increase in all the rates, particularly in Oregon and California. Idaho has low rates, but has likewise shown an increase.

2. Report of the Committee to Make a Study of Heart Disease in the State of New York, Medical Society of the State of New York, Albany, 1928.

Hospital	Total Admissions		Heart Disease		Rheumatic Fever		Artscl. & Senescent		Congenital		Syphilitic		Others	
		Medical	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Children's Orthopedic	3,473	672	27	4.0	26	3.9	.....	.....	1	.15	.....	.....	.....	.....
Harborview	8,194	1,839	501	27.2	136	7.4	43	2.3	.....	.....	14	.8	308	16.7
Providence, private	5,394	1,766	100	5.7	3	.2	32	1.8	.....	.....	.....	.....	65	3.6
Seattle General, private.....	2,352	568	36	6.3	5	.9	3	.5	.....	.....	.....	.....	28	4.9
Virginia Mason, private.....	2,550	1,120	94	8.4	16	1.3	40	3.6	.....	.....	.....	.....	38	3.4
Swedish, private	3,743	672	88	13.0	9	1.3	20	3.0	.....	.....	2	.1	57	8.5
TOTALS	25,706	6,637	846	12.8	195	2.7	138	2.1	1	.....	16	.2	496	7.4

Fig. 6. Etiology of heart disease by assumed etiologic causes in six Seattle hospitals in 1932.

patients were medical. The hospital statistics are presented here for the purpose of comparison with those similarly compiled in other cities. In fairness to any further reference we must disclaim our belief in their accuracy. Coffen gave 26 per cent of 13,258 medical patients in a similar group from Portland hospitals as having cardiovascular disease. The discrepancy between this incidence and our own (12.8 per cent of 6637 patients) is of remarkable significance and may possibly be explained in that Coffen's figures were for the most part from public institutions instead of private hospitals.

ETIOLOGY

The classification of heart disease according to standardized criteria³ with reference to etiology, structural change and state of function is becoming more generally employed. This undoubtedly constitutes one of the most important contributions to cardiology in the past two decades. The comparison of statistical data is now possible, and many important facts have thus been revealed.

Hypertension constitutes the most important etiologic factor and is progressively becoming more frequent with the extension of the average human life. Cardiac failure has been shown to be the predominating ultimate outcome of those suffering from hypertension past the age of fifty years.

Arteriosclerosis is frequently a complication of hypertension, and it may be difficult or impossible to determine which of the two factors predominates in a given case. In many instances coronary sclerosis as a coexistent of generalized arteriosclerosis is responsible for myocardial changes and consequent failure. To this group angina pectoris and coronary thrombosis classically belong. The age of highest incidence for this group is between fifty-five and sixty-five years.

In any geographic or climatologic study of heart disease the consideration of rheumatic fever is paramount. By such studies in the past fifteen years several important characteristics of rheumatic fever have been recognized. That it is a systemic infection producing structural cardiac changes seems well established. Persons in the lower age brackets are decidedly the most commonly affected, and many

are invalidated thereby. The most frequent occurrence is in densely populated areas which have severe climates. The high incidence in the Northeastern states contrasts sharply with the relative infrequency in the South. It appears that the incidence of rheumatic heart disease in this particular locality parallels that of Virginia and is decidedly less than that of other states of the same latitude.

It is the impression of our clinicians of long experience in this section that rheumatic fever is becoming more common. We offer as a possible explanation of this the increasing population, the consideration of rheumatic fever as a systemic infection, and the more proper etiologic identification of chronic cardiac structural defects. Although acute rheumatic fever is a relative rarity we encounter it most often in the native born persons. The later manifestations are found with moderate frequency. We should thus be prompted to more closely study the methods of timely recognition and management of this affliction. It is our belief that in the future rheumatic fever will be among those diseases so efficiently dealt with through the public institutions of preventive medicine.

Thyrotoxicosis undoubtedly has a toxic and dynamic effect upon the myocardium. The existence of a second factor is recognizable in the majority of cases. Whether or not pure thyroid heart disease exists remains a moot question. The existence of an additional causative factor, such as hypertension or arteriosclerosis combined with thyrotoxicosis, adds materially to the gravity and duration of cardiac insufficiency.

Syphilis is primarily a vascular disease, and involvement of the aorta or other large vessels produces secondary strain upon the myocardium which results in cardiac insufficiency. The coronary vessels and their branches are seldom affected. The reports from the southern states and those from large charity institutions show a greater incidence than is found with private patients. The existence of cardiovascular syphilis, therefore, seems to have a direct relationship to the environment and race in which the infection is most prevalent.

Reports of etiologic incidence show that hyper-

tension and rheumatic fever are the most common causes of organic heart disease. Arteriosclerosis appears as the next most significant. Syphilis and thyrotoxicosis constitute less frequent although important causes. The remaining cases are attributed to a variety of factors such as congenital malformation, infectious processes, trauma, tumors, pulmonary disease and chemical poisons. The number of cases assigned to the inevitable group labeled "etiology unknown" varies widely in different reports.

The group of 556 private cardiac patients studied were from the Medical Department of The Mason Clinic. Of these patients, 269 (50 per cent) were hospitalized for treatment; hence we have a group consisting of hospitalized as well as ambulatory patients, which should be representative of patients ordinarily treated for cardiac disease. With these patients all necessary modern diagnostic adjuncts were employed, the majority having roentgenographic and electrocardiographic study. Functional heart disease was not included in this study, for the majority of these patients received diagnoses of other neuroses in which cardiac disturbances played a part.

The etiologic classification of the private cases was carried out according to the criteria recommended by the American Heart Association.³ The histories selected for study were those in the first 46,000 registrations in the clinic; however, all records of cases of heart disease could not be utilized, as many patients were seen in consultation, at home or in other hospitals, or were treated in one of the minor surgical departments. Only the records of patients subjected to complete medical study by the internists were considered of statistical value. Consequently the elimination of many unsuitable charts prevented the ascertaining of the incidence of heart disease among the total number of patients registered.

In many patients more than a single etiologic factor was operative. The designation of a single or the most eminent factor is less informative than when the additional one is duly given secondary consideration. We have thus classified our cases, however, when more than two factors existed. The tertiary factor was never found sufficiently significant to warrant etiologic consideration. The cases are first grouped under the primary classification, the secondary factors constituting the subgroups (fig. 7).

In order to obtain the true relative incidence of

	No. Cases	Percentage
Hypertensive	56	10.0
+ Arteriosclerotic	187	33.8
+ Thyroid	19	3.4
+ Rheumatic	11	2.4
+ Syphilitic	1	0.2
	274	49.4
Arteriosclerotic	84	15.1
+ Thyroid	17	3.0
+ Rheumatic	2	0.4
+ Syphilitic	10	1.8
	113	20.3
Rheumatic	82	14.7
+ Thyroid	6	1.0
	88	15.7
Acute rheumatic carditis.....	13	2.3
Bacterial endocarditis	11	2.0
Thyroid	11	2.0
Unknown	30	5.4
Congenital	5	0.9
Syphilitic	11	2.0
	556	100.0

Fig. 7. Etiologic type of heart disease; 556 cases.

	No. Cases	Percentage
Hypertensive	56	6.8
Arteriosclerotic	187	22.5
Thyroid	19	2.3
Syphilitic	1	0.1
Rheumatic	11	1.4
	274	33.1
Arteriosclerotic	84	10.0
*Hypertensive	187	22.5
Thyroid	17	2.0
Rheumatic	2	0.2
Syphilitic	10	1.0
	300	35.7
Thyroid	11	1.4
*Hypertensive	19	2.3
*Arteriosclerotic	17	2.0
*Rheumatic	6	0.7
	53	6.4
Syphilitic	11	1.4
*Hypertensive	1	0.1
*Arteriosclerotic	10	1.0
	22	2.5
Rheumatic	82	9.8
*Hypertensive	11	1.4
*Arteriosclerotic	2	0.2
Thyroid	6	0.7
*Acute carditis	13	1.6
*Bacterial endocarditis.....	11	1.4
	125	15.1
Acute rheumatic carditis.....	13	1.6
Bacterial endocarditis.....	11	1.4
Unknown	30	3.6
Congenital	5	0.6
	833	100.0

*Repetition considered as complications in other groups.

Fig. 8. 833 etiologic factors.

any particular etiologic type it was necessary to consider the total number of cases with adequate criteria, although some existed as secondary factors of another group. Figure 8 was arranged to show the interrelations and overlapping of the various groups. Such an arrangement shows a total of 833 etiologic factors in 556 cases of heart disease.

GENERAL CONSIDERATIONS

All of the patients had routine laboratory tests for syphilis (Kolmer and Kahn). Twenty-four had positive serologic evidence of this infection, which corresponds favorably with the incidence of syphilis in all patients examined in the clinic.

3. Criteria for the Classification and Diagnosis of Heart Disease. By the Criteria Committee of the Heart Committee of the New York Tuberculosis and Health Association, Inc., New York, 1932.

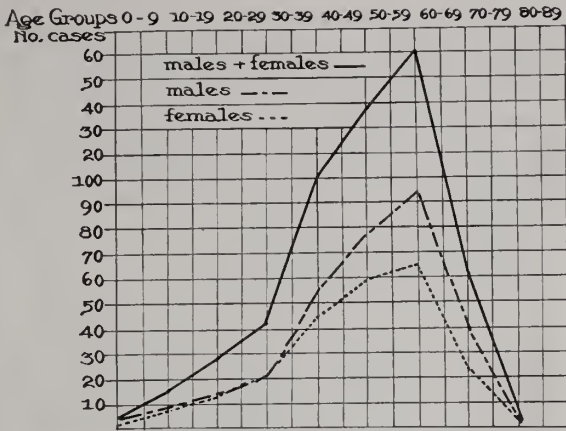


Fig. 9. Heart disease incidence by age and sex. 556 private cases.
This chart shows the relative incidence of organic heart disease in males and females of the 556 private cases. The highest incidence in both sexes was in the 60th year. After 30, males show a progressive predominance up to the 60th year.

Age and sex. The percentage of males (56.5 per cent) predominates over that of females (43.5 per cent), giving an approximate ratio of 5 to 4. Practically all of the patients studied were adults; only 17, or 5 per cent, were under the age of twenty. This is highly important in interpreting the significance of the total figures. The greatest number of cases occurred in the sixth and seventh decades (fig. 9).

Heart failure. Of the total group, 329 (68.0 per cent) had evidence of congestive failure; 83 (15.0 per cent) had angina pectoris. The latter was classified as a symptom of cardiac insufficiency and not as an etiologic type.

ANALYSIS OF ETIOLOGIC GROUPS
(Fig. 10.)

Hypertensive heart disease. To this group belonged 274, or 49.4 per cent, of the 556 cases. The average age of the patients with hypertension alone was less than that of those whose cases were complicated by arteriosclerosis. In those with such dual etiology, myocardial insufficiency, arrhythmias and cardiac enlargement were more frequently recorded. The duration of the hypertension, coupled with anoxemia due to peripheral vascular sclerosis, is probably responsible for these differences. The occurrence of hypertensive heart disease complicated by thyrotoxic, rheumatic and syphilitic cardiac manifestations was infrequent, and conclusions deducted therefrom are not justified. However, in those cases having rheumatic and thyrotoxic complications more positive evidence of cardiac disease was usually present.

Arteriosclerotic heart disease. We recognize a definite arteriosclerotic group in which cardiopathy is attributed to coronary sclerosis. In addition, we

ETIOLOGICAL	NO CASES	PER CENT	SEX		AGES												ANATOMICAL					PHYSIOLOGICAL				
			M	F	0 %	10 %	20 %	30 %	40 %	50 %	60 %	70 %	+	MURMURS					ENLARGE MENT	DEXTRO CARDIA	CORONARY THROMB.	AURIC. FIB.	FAILURE			
														MR	MS	AR	AS	PS					CONG.	'ANGINAL		
HYPERTENSIVE + ARTERIOSCLEROSIS + THYROID + SYPHILITIC + RHEUMATIC	56 187 19 1 11	10 33.8 3.4 .2 2.4	27 104 5 1 6	29 83 14 5			2	3	22	29					11	1			42 164 13 9		2 6 	4 35 5 4	28 13 15 7	3 31 2 1		
HYPERTENSIVE + COMPLICATIONS	274	49.4	143	131			3	9	41	78	99	44	81	11	10	2	228		8	48	183	37				
ARTERIOSCLEROTIC + THYROID + SYPHILITIC + RHEUMATIC	84 17 10 2	15.1 3. 1.8 .4	64 10 9 1	20 7 1 1				7	17	42	18		23	6			37 11 4 2		10 1 1	21 7 1	48 13 1 2	31 3 				
ARTERIOSCLEROTIC + COMPLICATIONS	113	20.3	84	29				11	22	56	24						54		11	29	54	34				
RHEUMATIC + THYROID + ACUTE CARDITIS + BACTERIAL ENDOCARD.	82 6 13 11	14.7 1. 2.3 2.	33 2 5 7	49 4 8 4		7	13	25	23	12	2		69	66	9	2	49 6 4 7			21 1 	39 3 4 2	2 				
RHEUMATIC + COMPLICATIONS	112	20.	47	65	4	17	18	31	27	13	2		88	87	17	3	66			22	48	2				
THYROID	11	2.	1	10					4	7			3				7			3	3	2				
CONGENITAL	5	.9	1	4		2	2		1							3	2	2			1					
SYPHILITIC	11	2.	9	2			1	4	8	14	3						4				6					
UNKNOWN	30	5.4	24	6				1	6	4			1				12			5	10	8				
TOTALS	556	100	309	247	4	19	24	45	98	138	166	68	281	100	38	3	373	2	19	107	315	85				

Fig. 10. 556 cases of heart disease grouped according to chief etiologic factors and complications.

include certain secondary factors. This group presents no phenomenal characteristics. The incidence of coronary thrombosis and angina pectoris was high, for these diagnoses were considered as symptomatic and complicative rather than as clinical entities.

Rheumatic heart disease. We are inclined to believe that the total incidence (20 per cent) of this group does not represent the true incidence of rheumatic heart disease for the geographic area. Rela-

Etiologic Cause	New Eng.	Va.	N.Y.	Tex.	Rocky Mts.	Ore.	Wash.
No. Cases.....	2,421.0	300.0	1,000.0	915.0	867.0	1,673.0	556.0
No. Etiologic Factors	3,259.0	423.0	1,051.0	915.0	922.0	1,673.0	833.0
Rheumatic	29.3	15.6	42.7	7.3	44.0	13.0	16.7
Arterio-sclerotic	26.3	32.4	22.3	13.7	21.1	21.0	16.7
Hypertensive	21.7	32.6	8.6	47.7	14.9	36.0	33.1
Syphilitic	2.7	7.8	.....	19.3	1.1	5.0	2.5
Thyroid	2.1	2.6	.....	1.3	9.3	4.0	6.4
Ang. Pectoris.....	10.9	6.6	.....	2.3	.....	.....	.....
Congenital	1.1	.7	.....	.7	1.1	.1	.6
Unknown, Unclassified	2.2	1.6	17.8	4.9	7.3	3.6	.....
Bact. Endocarditis.....	.....	.....	.....	1.5	.2	.....	1.4
Miscellaneous	1.6	.....	8.6	1.3	.9	.....	.....

Fig. 11. Heart disease. Comparison of mortality rates in several localities. Compiled from material given in the articles noted in references 4, 5, 6, 7 and 8, and from our own statistics.

tively few children are seen by us, as there is no pediatric division in the clinic. No attempt has been made to secure additional data outside the clinic, as there is existent in this city no general pediatric hospital or large clinic. Our figures compare closely with those of Virginia and Oregon and contrast sharply with those for Utah (fig. 11), both of which have severer winters but less humidity than the state of Washington. Detailed comparative climatic studies would be interesting as bearing a possible explanation. It is comparatively rare to encounter a patient with acute rheumatic fever, and when seen the disease is frequently an atypical and mild form. Involvement of small joints only is not uncommon, and nodules have never been observed by the author. However, of the 112 patients, 70 (62.5 per cent) gave a history of joint involvement and only 7 had suffered from chorea. A sufficiently

large series is not available to present more accurate relative frequency of various individual symptoms.

Occasionally rheumatic heart disease is found associated with thyrotoxicosis or bacterial infection. All cases showing rheumatic manifestations were as follows:

	No. of Cases	Percentages
Rheumatic heart disease.....	82	14.7
Rheumatic thyroid heart disease	6	1.0
Acute rheumatic carditis.....	13	2.3
Bacterial endocarditis	11	2.0
	112	20.0

Bacterial infection. All of the patients in this group showed typical lesions of rheumatic heart disease in addition to presenting the characteristics of subacute bacterial endocarditis.

Acute carditis. Although this group belongs to that of rheumatic heart disease, it was separated and analyzed for comparison of the incidence (2.3 per cent) with that quoted by Coffen¹ of 0.1 per cent (hospital statistics). This may represent a true incidence on account of the relatively small number of cases; however, the number is almost equal to that found by Coffen in a review of 3488 cardiovascular patients (private and charity).

Thyroid heart disease. The occurrence of actual heart disease attributable to thyrotoxicosis alone was rare (2.0 per cent) but considerably less so when occurring with other contributing etiologic factors (9.4 per cent), particularly arteriosclerosis. Recently, in a follow-up study of 200 postoperative cases, we found that surgical relief of thyrotoxicosis in many instances was followed by a disappearance of cardiac dysfunction. This observation coincides with the experience of others.

Congenital heart disease. Of the five patients with congenital lesions three had pulmonary stenosis and two had dextrocardia. It is questionable whether the latter should be included in a series of organic disease, for with the exception of transposition the hearts were regarded as normal.

Syphilitic heart disease. The incidence of syphilitic heart disease was low, considering both the complicated and the uncomplicated cases. Our figures compare favorably with those of other series of private patients where the apparent influence of a negro population or the lower social strata does not exist.

Etiology unknown. In thirty instances evidence of heart disease was present but the necessary criteria were insufficient to render an etiologic diagnosis. It is probable that a third or more of these belong to the hypertensive or arteriosclerotic groups, as indicated by the presence of coronary thrombosis, cardiac enlargement and anginal pain.

4. White, P. D. and Jones, T. D.: Heart Disease and Disorders in New England, Am. Heart J., 3:302-318, Feb., 1928.

5. Wood, J. E., Jr., Jones, T. D. and Kimbrough, R. D.: Etiology of Heart Disease; Clinical Study of 623 Cases with Certain Observations on Race and Climate, Am. J. M. Sc., 172:185-194, Aug., 1926.

6. Wyckoff, J. and Lingg, C.: Statistical Studies Bearing on Problems of Classification of Heart Disease; Etiology in Organic Heart Disease, Am. Heart J., 1:446-470, April, 1926.

7. Stone, C. T. and Vanzant, F. R.: Heart Disease as Seen in a Southern Clinic. A Clinical and Pathological Survey, J. A. M. A., 89:1473-1477, Oct. 29, 1927.

8. Viko, L. E.: Heart Disease in Rocky Mountain Region, Am. Heart J., 6:261-273, Dec., 1930.

9. Whitney, J. S.: Heart Disease Mortality Statistics. American Heart Association, Inc., New York, 1924.

SUMMARY

1. Heart disease is the most common cause of death in the states of the Pacific Northwest.

2. The death rates for Washington, Oregon, Montana and Idaho have shown a progressive increase paralleling that for the United States Registration Area.

3. Statistics from hospital records are presented for comparison but are considered inaccurate.

4. The incidence of acute rheumatic fever is low. Chronic rheumatic valvular disease is found with moderate frequency. Relatively mild climatic conditions may be suggested as a possible explanation of this low incidence as compared with localities of similar latitude.

5. An analysis of the records of 556 private clinic patients given etiologic diagnoses reveals:

a. Arteriosclerosis was the most common complicated cause of heart disease (15.1 per cent) and hypertension second (10 per cent); hypertension and complications constituted 49.4 per cent and arteriosclerosis and complications 21.3 per cent.

b. Uncomplicated acute and chronic rheumatic disease constituted 17 per cent of these cases. When complicated it constituted an additional 5.4 per cent, giving a total of 23.4 per cent of the patients having rheumatic manifestations.

c. Acute rheumatic fever was rare (2.3 per cent).

d. Syphilis was not a common cause of heart disease (2.0 per cent), which corresponds to similar groups of private patients.

e. Subacute bacterial endocarditis occurred in 2.0 per cent of the patients.

f. Etiologic cause could not be assigned to thirty of the cases (5.4 per cent).

CONCLUSIONS

Heart disease ranks first as a cause of death in the Pacific Northwest; furthermore, there has been a progressive rise in the mortality rate from this cause. Morbidity statistics compiled from hospital records are not reliable. An analysis of the records of 556 private patients suffering from organic heart disease was made to determine the relative incidence of the various etiologic factors, as well as their associated abnormalities. From this study, hypertension (49.4 per cent), arteriosclerosis (20.3 per cent) and rheumatic fever (20.0 per cent) were found to represent the etiologic factors in 90 per cent of the cases. Other less frequent factors were syphilis (2.0 per cent), thyrotoxicosis (2.0 per cent), and congenital maldevelopments (0.9 per cent).

TULAREMIA AND ITS OCCURRENCE
IN OREGON *

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Tularemia is an infectious disease primarily of wild rodents which may be transmitted to man. To the United States Public Health Service belongs the credit of the isolation of the organism and the recognition and elucidation of the disease as a separate clinical entity. In 1911, McCoy¹ described a "plague-like disease of rodents" which he had encountered in California in nine counties lying between Los Angeles on the south and the Sacramento River on the north. In the following year he and Chapin² isolated the causative organism of the disease and named it *Bacterium tularensis*. In 1919³ and 1920⁴ Francis made a complete study of the disease and named it tularemia, because of its having first been found in Tulare County, California, and also because of the presence of the organism in the blood. Since then the disease has been found in most states of the Union, in British Columbia, Japan, Russia, Finland, England, Norway and Sweden.

A description of the disease may be found in the medical literature as far back as 1910, when Pearse⁵ reported seeing six cases of fever caused by the bite of the deer-fly. Francis⁶ states that the very first description of cases of tularemia was made on September 19, 1907, by Dr. Ancil Martin, of Phoenix, then the territory of Arizona, in a letter sent by him to Dr. F. G. Novy, of the University of Michigan. In this letter Dr. Martin stated that he had under observation and treatment five cases of an infection caused by the skinning and dressing of wild rabbits. Three of his cases had eye infections. The first human case on record which was confirmed bacteriologically was reported by Wherry and Lamb⁷ in 1913, when they isolated the bacterium from a conjunctival ulcer. Rabbit fever, glandular type of

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1. McCoy, G. W.: Plague-like Disease of Rodents. Bull. 43, Hyg. Lab., U. S. P. H. S., Apr., 1911.

2. McCoy, G. W. and Chapin, C. W.: Bacterium Tularensis, Cause of a Plague-like Disease of Rodents. Bull. 53, Hyg. Lab., U. S. P. H. S., Jan., 1912.

3. Francis, E.: Deer-fly Fever; Disease of Man of Hitherto Unknown Etiology. Pub. Health Rep., 34:2061-2062, Sept. 12, 1919.

4. Francis, E.: Occurrence of Tularemia in Nature as Disease of Man. Pub. Health Rep., 36:1731-1738, July 29, 1921.

5. Pearse, R. A.: Insect Bites. Northwest Med., 3, N.S.: 81-82, March, 1911.

6. Francis, E.: Tularemia. J. A. M. A., 84:1243-1250, April 25, 1925.

7. Wherry, W. B. and Lamb, B. H.: Infection of Man with Bacterium Tularensis. J. Infect. Dis., 15:331-340, Sept., 1914.

tick fever, and Ohara's disease were several other names given to the disease which now is universally known as tularemia.

The first cases of tularemia in Oregon clinically diagnosed and serologically corroborated were in 1925, when at my instance Dr. E. Dietsche of Klamath Falls sent the blood of several patients to Dr. Edward Francis, at the National Institute of Health (then the U. S. Hygienic Laboratory). These patients had been bitten by deer-flies and were suffering from what was later identified as the ulceroglandular type of tularemia. Since the latter part of 1928 we have performed the agglutination test for tularemia in our own laboratory.

Wild rabbits and hares constitute the greatest reservoir of infection for other animals and man. The disease is exceedingly fatal to rabbits, death usually taking place about one week after infection. Periodic decimation of wild rabbits in a district where they are usually abundant is undoubtedly due to tularemia. In a personal communication under date of June 30, 1930, Dr. O. E. Patterson, physician-in-charge at the Klamath Agency, wrote in part as follows:

"In this district there is a large area of sage brush flat bordering on a fair-sized stream. About fifteen miles distant there is another similar area covered by sage brush and near the same river. I had occasion to cross these tracts during the winter of 1928-1929, and noted the numerous tracks and well beaten trails made in the snow by rabbits. I have crossed both of these flats this winter while the ground was covered with snow, and in one area not a single track or rabbit was to be seen, and in the other only one rabbit was seen and very few tracks. This led me to suspect that this change was brought about only by the *B. tularensis* infection, almost completely eradicating the rabbit population in these areas."

The disease is perpetuated among wild rabbits through the agency of biting, blood-sucking flies, lice and ticks. Domestic rabbits are in nature free from this disease, although they may be readily infected experimentally.

Although *B. tularensis* was first isolated from the ground squirrels, but a single case of infection has been traced to this rodent. On the other hand, cases have been reported as having been acquired from wild rats, muskrat, opossum, cat, coyote and woodchuck. Since the common rabbit tick (*Haemaphysalis leporis palustris*) is also found on game birds, this possible route for the transmission of tularemia has been investigated. Parker⁸ showed that quail may be experimentally infected with this

disease. Green and Wade⁹ were able to infect ruffed grouse and the Hungarian partridge with *B. tularensis*.

Ticks are undoubtedly the most common carriers of tularemia infection in Oregon. In addition to the rabbit tick, Parker, Spencer and Francis¹⁰ reported the wood tick, *Dermacentor andersoni stiles*, to be infected with *B. tularensis*. The wood tick, *Dermacentor occidentalis*, which is common in many sections of California and in Southwestern Oregon, was reported to be infested with *B. tularensis* by Parker, Brook and Marsh.¹¹ According to these investigators, ticks removed from sick cattle and injected into guinea pigs produced the typical symptoms and pathology of tularemia.

Philip and Jellison¹² report experimental infection with *B. tularensis* of the American dog tick, *Dermacentor variabilis*, and conclude that this tick "must be kept in mind as a possible source of human infection, especially where case histories fail to show evidence of animal contacts." Parker and Dade¹³ reported finding tularemia in sheep in Montana, and gave warning as to their possibility of being a source of human infection. Parker and Spencer¹⁴ demonstrated the hereditary transmission of the infection by female wood ticks to their eggs, larvae and nymphs, and also showed that the ticks carry their infection over winter and throughout their lives, thus forming a permanent reservoir of tularemia.

The first recognized and proven cases of tularemia in Oregon were caused by the bite of the deer-fly, *Chrysops discalis*. This insect, while commonly found around horses and cattle may also feed on rabbits, transmitting the infection directly to man by mechanical means. The bed bug (*Cimex lectularius*), the squirrel flea (*Ceratophyllus acutus*), and the stable fly (*Stomoxys calcitrans*), all of whom bite man, have also been shown capable of transmitting the disease.

While tularemia is a highly infectious disease, no instance has as yet been reported of its spread from man to man by mere contact or by the bites of insects which have previously bitten a patient.

8. Parker, R. R.: Quail as Possible Source of Tularemia Infection in Man. Pub. Health Rep., 44:999-1000, April 26, 1929.

9. Green, R. G. and Wade, E. N.: Ruffed Grouse are Susceptible to Tularemia. Proc. Soc. Exper. Biol. and Med., 25:515-517, April, 1928.

10. Parker, R. R., Spencer, R. R. and Francis, E.: Tularemia Infection in Ticks of Species *Dermacentor Andersoni Stiles* in the Bitterroot Valley, Mont. Pub. Health Rep., 39:1057-1073, May 9, 1924.

11. Parker, R. R., Brooks, C. S. and Marsh, H.: Occurrence of Bacterium Tularensis in Wood Tick (*Dermacentor occidentalis*) in California. Pub. Health Rep., 44:1299-1300, May 31, 1929.

12. Philip, C. B. and Jellison, W. L.: American Dog Tick, *Dermacentor Variabilis*, as Host to Bacterium Tularensis. Pub. Health Rep., 49:386-392, March 23, 1934.

13. Parker, R. R. and Dade, J. S.: Tularemia in Sheep in Nature. Pub. Health Rep., 44:126-130, Jan. 18, 1929.

14. Parker, R. R. and Spencer, R. R.: Hereditary Transmission of Tularemia Infection by Wood Tick *Dermacentor Andersoni Stiles*. Pub. Health Rep., 41:1403-1407, July 9, 1926.

Francis⁶ quotes Harris who reported a case of direct transmission of tularemia to a mother, who, while dressing an ulcer and an opened gland on the neck of her son, pricked her thumb with a safety pin, resulting in severe infection of the thumb, and which was later followed by typical fever and prostration, with suppuration of the epitrochlear and axillary glands. Instances of two or more persons receiving the infection from handling the same rabbit are not lacking. Dr. O. E. Patterson, of Klamath Agency, in a personal communication reported an Indian mother and three small daughters to have contracted tularemia from handling the same rabbit. Junkin¹⁵ reported two cases occurring in Idaho who obtained their infection from cleaning the same rabbit.

Francis¹⁶ classifies tularemia under four clinical types: "1. Ulceroglandular type. The primary lesion is a papule of the skin, later an ulcer, and is accompanied by enlargement of the regional lymph glands. 2. Oculoglandular type. The primary lesion is a conjunctivitis and is accompanied by enlargement of the regional lymph glands. 3. Glandular type. There is no primary lesion at the site of infection, but there is enlargement of the regional lymph glands. 4. Typhoid type. There is no primary lesion nor is there glandular enlargement."

The vast majority of the cases encountered are of the ulceroglandular type. The oculoglandular type probably comes next in number. Laboratory workers who have contracted this disease—and it has taken a heavy toll among those who have worked with the organism—were seemingly prone to have the typhoid type. Gudger¹⁷ reported a fatal case of tularemic pneumonia. The greatest degree of involvement was in the lungs; there was no lymphatic enlargement. Gundry and Warner¹⁸ also reported a fatal case of tularemic pneumonia, and in commenting upon their review of fourteen fatal cases which came to autopsy, state that pneumonia or other lung involvement had been a very frequent finding.

The incubation period is from twenty-four hours to ten days, the average being three and one-half days. The onset is sudden, manifested characteristically by headache, vomiting, chilliness, chills, aching bodily pains, sweating, prostration and fever.

The active stage of the disease lasts from two to three weeks, during which time may be noted weakness, loss of weight, recurring chills, sweats and prostration. The mortality is low. Francis reports 24 deaths of 679 reported cases. Other workers give 4 per cent as the average fatality rate. Convalescence is very slow and relapses have been reported. In so far as is known one attack confers permanent immunity.

The etiologic agent, *Bacterium tularensis*, is a small, pleomorphic, nonmotile, gram-negative bacterium. In old cultures it exists in coccoid form. In young cultures bacillary and ovoid as well as coccoid forms are found. The dimensions vary from 0.2 microns to 1 micron in diameter, and from 1 micron to 3 microns in length. At times it may show polar granules. It is strictly aerobic. It grows best at 37° C., and has an optimum pH reaction of 6.8 to 7.3. It ferments glucose, levulose, mannose and glycerin, forming acid but not gas. The organism does not grow on plain media. When first isolated by McCoy and Chapin it was grown on coagulated egg prepared essentially according to the Dorst formula. Francis introduced the use of cystin-blood agar medium, on which *B. tularensis* gives a good growth. Recently Rhamy¹⁹ reported a luxuriant growth obtained within three to four days on a culture medium composed of equal parts of hemoglobin and cystine heart agar.

Because of its similarity to *Pasteurella pestis* in the pathologic lesions produced in animals the tularensis organism has been placed by some workers in the hemorrhagic septicemia group. It differs from *B. pestis*, however, in its growth requirements, cultural characteristics and antigenicity. As a matter of fact, antigenically it resembles very closely the *Brucella* organisms, cross agglutination having been obtained and reported by many workers.

Laboratory diagnosis of tularemia can be made by blood culture, by inoculation of blood, tissue or pus into guinea pigs, rabbits or white mice, by the complement fixation test, and by the agglutination reaction. Isolation of the organism by blood culture and the use of the complement fixation test are methods which have had and undoubtedly will have limited application. Isolation of the organism by means of animal inoculation has been used largely by research workers. The animals die within a week, and present a characteristic pathology. The lymph glands are enlarged and show granular caseation;

15. Junkin, H. D.: Two Unusual Cases of Tularemia. Northwest Med., 26:415, Aug., 1927.

16. Francis, E.: Symptoms, Diagnosis and Pathology of Tularemia. J. A. M. A., 91:1155-1161, Oct. 20, 1928.

17. Gudger, J. R.: Tularemia Pneumonia; Case Report. J. A. M. A., 101:1148-1150, Oct. 7, 1933.

18. Gundry, L. P. and Warner, C. G.: Fatal Tularemia; Review of Autopsied Cases with Report of Fatal Case. Ann. Int. Med., 7:837-852, Jan., 1934.

19. Rhamy, B. W.: New and Simplified Medium for *Pasteurella Tularensis* and Other Delicate Organisms. Am. J. Clin. Path., 3:121-124, March, 1933.

the spleen is also enlarged, and it, as well as the liver, is studded over with great numbers of small white foci of necrosis. Because of the minuteness of the lesions Francis advises the use of a hand lens. In the absence of apparent lesions it may be necessary to transfer to a fresh animal. Thus Parker states that ticks infected with *Bacterium tularensis*, when injected intraperitoneally into guinea pigs, frequently cause death without typical lesions, but they become typical if transfer of the tissue emulsion is made to a second guinea pig.

The agglutination test is the method of choice in the recognition of the disease. Francis states: "I do not know of any other disease in which an agglutination test will set the diagnosis right in such certain terms after so many years." Simpson²⁰ reports the diagnosis of tularemia by means of the agglutination test in a man aged thirty-nine, who twenty-four years previously had been infected by the handling of wild rabbits; his serum agglutinated *B. tularensis* in all dilutions to 1:160. Agglutinins for *B. tularensis* are absent in the first week of illness, and are always present at some time in the second week. The maximum titer is reached in the fourth, fifth, sixth or seventh week.

Recently Foshay²¹ described an intradermal reaction by which he claims to have been able to make an accurate and earlier diagnosis of tularemia. An injection of 0.01 cc. of a specially prepared antigen gives, at the end of forty-eight hours, a circular, tender area of elevated soft erythema from 5 to 6 cm. in diameter, with a pale, hard, edematous center about 1 cm. in diameter. I prepared such an antigen and used it on several rabbits that previously had been given from three to five injections of a suspension of a nonvirulent strain of *B. tularensis*. An intradermal reaction was obtained on only one of three rabbits thus treated. I have not had the opportunity to use it on human cases.

Treatment of tularemia has been until recently entirely symptomatic. According to Simpson,²² strict confinement to bed is the most important part of the treatment. He advises against incising the primary lesion, and states that it is unwise to excise or even incise the enlarged glands until definite suppuration is present. Baer²³ treated successfully two primary lesions of tularemia on or about the

third day of infection with a dose of a half unit of unfiltered roentgen rays over the affected area. Roentgen therapy may apparently be of value in hastening resolution of lymphadenopathy.

Fisher²⁴ reports prompt and satisfactory response of three cases of tularemia to three or four injections of neoarsphenamine. The primary lesions responded to this type of treatment in much the same manner as primary luetic lesions. Foshay^{25, 26} very recently reported the preparation and successful use of an antiserum. By the use of this serum he claims the mean duration of the disease is reduced half, and the duration of adenopathy and the period of disability is appreciably shortened. His antiserum has specific desensitizing action, and its beneficial effects he believes are due to this property. Simpson,²⁷ using 10 cc. of Foshay's antiserum intravenously on two successive days, reports abrupt cessation of fever, malaise, chills, sweats, arthralgias and myalgias within forty-eight hours after the second injection, as well as a marked reduction in the size of the involved lymph nodes.

Tularemia does not present a serious public health problem in Oregon, but it is a problem nevertheless. Since 1925 and up to 1934 there have been reported forty-three cases, including one death from tularemia in this state. Undoubtedly these are not all the cases that have occurred, nor have even all the known cases been reported. Of these forty-three cases twenty-six were serologically diagnosed by our laboratory, and four by Dr. Edward Francis. Twelve cases were reported, of which there is no record of laboratory confirmation. One case was reported, the serum of which was negative in our laboratory. It is a matter of regret that complete confirmation could not be obtained in these thirteen cases. The clinical diagnosis in six of these cases, however, was made by a physician who has probably had more cases of proven tularemia under his observation than any other physician in this state. Of the total reported cases not serologically confirmed, in only two may the clinical diagnosis be seriously questioned.

The agglutination titres varied from 1/20 to 1/2560, and were distributed as follows:

Titre.....	1/20	1/40	1/80	1/160	1/320	1/640	1/1280	1/2560
No. of cases...	1	3	3	7	4	7	1	4

24. Fisher, W. S.: Neoarsphenamine in Tularemia; Case Reports. J. Indiana M. A., 26:273-274, June, 1933.

25. Foshay, L.: Antiserum for Treatment of Tularemia. J. A. M. A., 101:1447-1449, Nov. 4, 1933.

26. Foshay, L.: Tularemia Treated by New, Specific Antiserum. Am. J. M. Sc., 187:235-245, Feb., 1934.

27. Simpson, W. M.: Tularemia; Summary of Recent Researches, with Consideration of 103 Dayton Cases. Ohio State M. J., 29:35-41, Jan., 1933.

20. Simpson, W. M.: Tularemia. Paul B. Hoeber, Inc., New York, 1929.

21. Foshay, L.: Tularemia; Accurate and Earlier Diagnosis by Means of Intradermal Reaction. J. Infect. Dis., 51:286-291, Sept.-Oct., 1932.

22. Simpson, W. M.: Tularemia (Francis' Disease). Ann. Int. Med., 1:1007-1059, June, 1928.

23. Baer, H. L.: Roentgen Treatment of Primary Lesion of Tularemia. Arch. Dermat. & Syph., 28:557-559, Oct., 1933.

The antigen used is the strain known as *B. tularensis* No. 38, which was isolated by Dr. Francis from a human case in Utah in 1920. Since August, 1921, it has been carried exclusively on culture media and it is now nonvirulent for the guinea pig and rabbit. The exact procedure as outlined by Dr. Francis has been used in carrying out the agglutination reaction.

Several interesting experiences were encountered in connection with the agglutination test. Francis, and Evans²⁸ and other workers, have shown that coagglutinins for *Brucella* are found in antitularensis serum. As a routine we always perform the agglutination test for undulant fever on all sera submitted for suspected tularemia.

Case 1. The serum of F. G., received on May 27, 1932, agglutinated our brucella antigen (*B. abortus* No. 80) in a dilution up to 1/160, and gave no agglutination whatsoever with *B. tularensis*. On June 1, another blood specimen from this patient agglutinated the brucella antigen up to a dilution of 1/320, and only to 1/20 with *B. tularensis*. The information received with this specimen stated that "this man has a punched out ulcer on his cheek and a lymphadenitis at the angle of the corresponding jaw. The temperature is not high; it is normal in the morning and gets up to 100.4°, usually in the afternoon." Clinically this case was tularemia; serologically it seemed to be undulant fever. Another blood specimen was requested and received on July 7, 1932. On this date the serum agglutinated both *B. abortus* and *B. tularensis* in a dilution up to 1/640. Recourse was had to absorption of agglutinins, and the *B. tularensis* was proven to be the major agglutinin, confirming the diagnosis of tularemia made by the physician.

On March 3, 1933, the University of Oregon Medical School Clinic submitted a blood for tularemia.

Case 2. It agglutinated *B. tularensis* in a dilution up to 1/160. The history taken from this patient's chart showed that on March 2, 1933, he "complained of lumbar backache. His temperature was 100.2°. He had a light diffuse erythema over the whole body. The postauricular and all other glands of the neck were slightly enlarged and tender. The

left axillary and epitrochlear glands were also slightly enlarged and tender. He was weak and chilly." He gave a previous history (June, 1932) of having scratched his finger and having skinned a wild jack rabbit. A diagnosis of influenza and tularemia was made.

The name, McC, sounded strangely familiar. In looking up our laboratory records we found that the blood of a patient by that name (although the given initials were different) had been sent from Prineville on July 16, 1932, and it had agglutinated *B. tularensis* up to a dilution of 1/2560. A search instituted several weeks ago for the patient was finally rewarded by finding him in jail, and by his admission it was his blood which had been sent from Prineville in 1932. Undoubtedly his illness in March, 1933, was a remission of his former ailment.

Of the thirty serologically proven cases of tularemia, twenty-one were males, and nine females. The youngest were a boy and girl, each five years of age; the oldest, a woman of sixty-eight.

The largest number of cases reported from any section of the state was twenty from Klamath County. Summer Lake²⁹ has furnished a large number of cases, many of whom have not even consulted a physician. In this section the deer-fly has undoubtedly been equally guilty with the rabbit in the spread of the infection. The disease has thus far been reported only from east and southeast of the Cascade range.

Case 3. The only death reported was of a woman aged 66 years, in Harney County. The death certificate gives the cause of death as "chronic valvular disease," with "tularemia," as a contributory cause. The diagnosis of tularemia was not confirmed by laboratory tests or by autopsy.

She was first seen by the physician three days before her death, "at which time she had a fever of 104°, an ache over her body, and the symptoms and physical findings of a severe valvular heart disease. She had a scratch on her hand but no signs of infection in it nor in the lymph glands on that side. The next day she was worse in every way; the scratch showed a small spot that seemed infected and there was a definite tenderness over the glands in the axilla. I elicited then a history of her having cut up rabbits three days before the onset of her fever. On the third day of her fever she had a definite punched out sore over the scratch."

28. Francis, E. and Evans, A. C.: Agglutination, Cross-agglutination and Agglutinin Absorption in Tularemia. Pub. Health Rep., 41:1273-1295, June 25, 1926.

29. Coffey, J. R.: Undulant Fever and Tularemia. Northwest Med., 28:505-507, Nov., 1929.

Table 1. Monthly Incidence of Tularemia in Oregon, 1925-1933

A. Cases confirmed by agglutination test.													
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1925	....	....	....	....	....	1	1	....	....	....	....	....	2
1928	....	....	....	....	....	....	1	....	1	....	....	....	2
1929	....	....	1	....	....	1	1	1	1	1	1	....	7
1930	1	....	....	1	....	1	....	2	....	....	....	....	5
1931	....	....	....	1	....	....	....	....	....	1	....	....	2
1932	....	....	....	....	....	3	2	2	1	....	....	....	8
1933	....	....	1	....	....	1	1	1	....	....	....	....	4
Total	1	....	2	2	....	7	6	6	3	2	1	....	30
B. Additional cases reported; no record of serum tested.													
1929	....	....	....	1	1	1	4	....	....	....	....	....	7
1932	....	....	....	....	....	....	1	1	....	....	....	....	2
1933	....	1	1	....	....	1	....	....	....	....	....	....	3
Total	....	1	1	1	1	2	5	1	....	....	....	....	12
C. Additional cases reported; serum negative in State Hygienic Laboratory.													
1929	....	....	....	....	....	....	....	1	....	....	....	....	1
Grand Total	1	1	3	3	1	9	11	8	3	2	1	....	43

This physician had previously had several proven cases of tularemia under his care and was very familiar with the clinical symptoms of this disease.

While cases have been reported in Oregon in practically every month of the year, there is indicated a marked seasonal incidence of the disease. Table 1 shows that June, July and August are months in which the largest number of infections have occurred.

The seasonal incidence of the disease in this state corresponds to that found in other states of the Northwest. Jack rabbits, which are regarded as a destructive pest in the western states, are hunted from early spring until fall months. Deer-flies are most active from June to September. The wood tick (*Dermacentor andersoni stiles*) is most active between March and August. These are the reasons, therefore, why we may expect in Oregon a larger number of cases in the late spring and summer months.

Mention has already been made of the bacteriologic classification of *B. tularensis*, and its close resemblance to *Pasteurella pestis*.

Case 4. In the latter part of May, 1934, our laboratory received a specimen of tissue removed from the groin of a shepherd who had died from an unknown infection. The physician suspected either tularemia or plague. Since neither plague nor plague-infected rodents had ever been found in this state, the isolation of a gram-negative bacillus from the bubo was held of no great moment.

Culturally the organism, with one exception, behaved like *B. tularensis*. The exception furnished the clue to its identification; it grew on ordinary culture media. Growth on salt agar, injection into guinea pigs and serologic tests proved conclusively that the organism was *P. pestis*. This finding was later corroborated by the National Institute of Health, Washington, D. C.

The history of this first known and proven case of bubonic plague in Oregon was given by the attending physician as follows:

Case 5. "C. S., aged 30, shepherd, was employed on a desert near Lakeview. There were a number of tick bites on his right ankle, which (probably?) were the source of his infection. The onset of the symptoms was on May 19; the temperature was 105°, pulse 110, leukocytes 14,000. There was tenderness and a swelling in the right groin the size of an egg. There was slight improvement the next day. On the following day the patient felt strange; there was noticed a dusky livid hue over his body. This became more pronounced and death occurred on May 21 from an overwhelming toxemia. The patient was very dark at death."

A day or two after laboratory diagnosis of plague had been made word was received from the Surgeon General's office in Washington, D. C., of the findings of plague-infected ground squirrels in Modoc County, California, which is adjacent to Lake County, Oregon. From now on plague as well as tularemia must be added to the public health problems of Oregon.

The occurrence of tularemia in Oregon has not been epidemic in nature, and because of its non-communicability infections in more than one person in a family have been uncommon. I am indebted to Dr. O. E. Patterson, Klamath Agency, for the history of four cases of tularemia in an Indian family.

Case 6. Mrs. J. R., Indian, aged 33, widow, handled a rabbit on July 15, 1929, and about ten days later an ulcer appeared on the back of the right hand. The hand became swollen; the epitrochlear and axillary glands were swollen and painful. There was considerable conjunctivitis. The patient had fever and was tired for a long time. On October 1, 1929, the arm was almost useless because of the swollen and painful axillary glands. The pain was severe in the region of the shoulder and down the back on the affected side. On October 15, 1929, an abscess on the right knee opened spontaneously. The pain and swelling was sufficient to prevent the patient from walking about for eight days. All other glands subsided without necessity of incision. Her blood agglutinated *B. tularensis* in 1/160.

Case 7. P. R., female, aged 14, Indian, daughter of J. R. She handled the same rabbit that had infected her mother. An ulcer appeared on her hand about a week later. There was extreme malaise and fever; temperature 102.5°; photophobia, but no conjunctivitis. Her arm was affected similar to that of her mother. Subsided naturally after a long course.

Case 8. A. R., female, aged 11, Indian, daughter of J. R. She had had the same rabbit in her hands. There was an ulcer on the second finger of the left hand. There was malaise and fever. The glands subsided naturally after a slow course. There was slight conjunctival congestion at the time of my visit to her home.

Case 9. N. R., female, aged 9, Indian, daughter of J. R. She had played with the same rabbit. She had three ulcers on the second finger of the right hand. Temperature was 102.2°, and there was some conjunctivitis and photophobia. Home-made poultices were applied to the axillary gland and the abscess ruptured and discharged freely.

Agglutination tests were not made on the blood of the three children. There is no question, however, as to the accuracy of the diagnosis. The presence of specific agglutinins in the mother's blood, the history of having handled the same rabbit by all four patients, and the typical symptomatology in all make the diagnosis of tularemia in the children indisputable.

SUMMARY AND CONCLUSIONS

Since 1925 and up to 1934 there have been reported in Oregon forty-three cases of tularemia, including one death. A more careful study of this disease by the physicians of this state is suggested. As Simpson so aptly puts it, "the most important consideration in the diagnosis of tularemia is to have the disease in mind." Based on our experience with other diseases, for every recognized case of tularemia there are possibly three that go unrecognized. Yet recognition is comparatively easy.

Question your patient as to possible contact with wild rodents, especially wild rabbits, or deer-flies, or wood ticks. Is there an indolent primary lesion? Is there persistent regional adenopathy associated with

"grippe-like" onset symptoms? Submit a blood specimen for the agglutination test to our laboratory during the second week of the disease for confirmation of your diagnosis.

The presence of plague in Oregon has been definitely and conclusively demonstrated, and physicians in Eastern Oregon must also have this disease in mind.

In submitting specimens, whatever their nature, some history of the case should always accompany them, so that the laboratory worker may be guided in the tests that he is to perform. Finally, report your cases promptly to your health officer. The control of infectious diseases in Oregon rests upon a knowledge of their existence. You physicians must always be our source of this information.

TULAREMIA, DEER FLY FEVER

REPORT OF TWO CASES, ONE WITH ENDOCARDITIS,
AND NECROPSY FINDINGS

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Tularemia is essentially an acute infectious disease of rodents with secondary infection in man and other animals. Its presence in a locality is dependent upon the local rodent population and since this family of mammals is numerous and its distribution so general, it is probable that tularemia may be found to be almost universal. With the spread of knowledge and the development of the diagnostic methods many cases are being recognized and new localities are being added to those known to harbor the disease.

Many animals have been shown to carry the disease but the rodents and especially the jack rabbit in the west constitute the chief reservoir of infection with the disease being spread to man by insect or other bites, handling infected material or working with cultures or experimental material. The earliest cases reported were in Box Elder County, Utah, in 1911, by Pearse who described them under "Insect Bites" as "Deer Fly Fever."¹

The deer fly (*Chrysops discalis* Williston), when active in the latter part of the summer, is a vicious insect inflicting a sudden sharp painful bite which often draws blood to the surface. They are prone to strike man about the head which is exposed and more easily reached. Tularemia resulting from the deer fly² bite is comparatively more severe than

that produced by other means of transmission and, were it not for the handling of infected rabbits, would probably be the most potent source of the infection in man in the intermountain region. The mortality rate of tularemia is low, not over 5 per cent, and many of the fatal cases are those in which the primary lesion is about the head, such as those resulting from deer fly bites and the oculoglandular type in which the primary lesion is a conjunctivitis.

Various types of pathologic lesions have been described.^{3,4} The commonest is the primary ulcer with regional adenitis and multiple miliary abscesses scattered throughout the liver, spleen, lungs and less often other organs. Similar lesions in the brain have been described and the meninges have been involved. The lung involvement appears to be relatively common, especially in the so-called typhoid type. Both lobar and bronchopneumonic lesions have been reported and the roentgenologic picture described.⁵ Agglutination of the tularensis organism has been obtained with the pleuritic effusion. Peritonitis, kidney lesions and toxemia may be terminal. Various cutaneous lesions may accompany the acute course of the disease.

The following case indicates the development of endocarditis with resulting cardiac incapacitation and death after twenty months as the result of complications of the endocarditis. Another report is of a rapidly fatal ulceroglandular type with miliary abscesses. Necropsy findings are presented in both.

Case 1. The patient, a married female, age 41, while working as a waitress at a resort on the shores of the Great Salt Lake, felt something bite her on the neck back of the left ear. She reached for the site but felt nothing and concluded she had been bitten by one of the spiders that she noticed on the platform. Six days later she had a fever of 104°, swelling and tenderness of the cervical glands on the left side and some induration about the puncture site on the neck with enlargement and tenderness of the regional lymphatic glands, severe headaches, backache, dyspnea, cough and expectoration of blood-tinged sputum.

The site of the bite was indurated, red and exuded some serum. There were several enlarged, firm, movable and very tender lymphatic glands. The heart borders were not enlarged, the left being 9.5 cm. from the midline. The sounds were clear, the first sound was slightly accentuated but there was no suggestion of a murmur in the sequence at any time. The rate was between 100 and 120, occasionally a little higher, and the rhythm was irregular at times. The systolic blood pressure was 130 and diastolic 80. Dyspnea was pronounced, respiration was labored and the fremitus was exaggerated in all the dimensions, especially posteriorly. There were many fine and squeaky rales over most of the

1. Pearse, R. A.: Insect Bites. Northwest Med., 3:81-82, March, 1911.

2. Francis, E., and Mayne, B.: Experimental Transmission of Tularemia by Flies of the Species *Chrysops discalis*. Pub. Health Rep., 36:1738-1746, July 29, 1921.

3. Francis, E. and Callender, G. R.: Tularemia; Microscopic Changes of Lesions in Man. Arch. Path. & Lab. Med., 3:577-607, April, 1927.

4. Foulger, M., Glazer, A. M., and Fosnay, L.: Tularemia Report of a Case with Postmortem Observations and a Note on the Staining of Bacterium Tularensis in Tissue Section. J. A. M. A., 98:951-954, March 19, 1932.

5. Archer, V. W., Blackford, S. D. and Wissler, J. E.: Pulmonary Manifestations in Human Tularemia; a Roentgenologic Study. J. A. M. A., 104:895-898, March 16, 1935.

lung area but there were no definite areas of impaired resonance suggesting consolidation. The sputum was blood-tinged and of a "prune juice" nature. The abdomen presented no significant findings; the liver and spleen were not palpable. There was no evidence of edema.

The leucocyte count was 9,800 with large lymphocytes 4 per cent, small lymphocytes 11 per cent, large mononuclears 1 per cent, transitional forms 2 per cent and polymorphonuclear neutrophils 82 per cent. The leucocyte count varied at intervals but was never over 19,000. The hemoglobin and erythrocyte counts were moderately decreased, suggesting a secondary anemia. The Wassermann test and blood cultures were negative and the urine had a trace of albumin, no sugar and a specific gravity of 1.018. She was mentally confused and irrational at intervals.

In the past she had had four completed pregnancies, four miscarriages, typhoid fever, a tonsillectomy, appendectomy and trachelorrhaphy. Her habits had been regular and she had been able to work consistently without dyspnea, undue fatigue or other evidence of cardiac embarrassment.

During the following seven weeks while under hospital observation the temperature fluctuated daily and gradually subsided but did not remain normal. Usually there was a rise of one degree and sweats were persistent and almost daily. The acute lung findings gradually disappeared but a chronic cough persisted. The original skin lesion healed slowly and the regional glands remained swollen and tender and one that suppurated was incised and drained and healed slowly.

The course was that of an acute endocarditis. The heart enlarged, the rate became irregular at intervals and the normal sounds were replaced by systolic and diastolic murmurs heard over both the mitral and aortic areas. The blood pressure increased from 130 systolic and 80 diastolic during the early part of the infection to 195 systolic and 90 diastolic and albumin and casts were found in the urine. A secondary anemia developed with a reduction of the erythrocyte count to 3,280,000 and the hemoglobin to 57 per cent. Repeated blood cultures failed to produce a growth of any organism.

Blood serum caused agglutination of *Pasteurella tularensis* and the reaction was confirmed by a similar report from the U. S. Public Health Service Laboratory. The Wassermann test was negative.

During the next few months the patient had repeated periods of pyrexia and daily sweats, loss of weight, headaches and marked and persistent weakness, with exhaustion and cough from slight exertion. About six months after the onset of the disease she returned to the hospital for a period of six months because of a psychosis that developed, in which she had delusions, heard talking and whispering and other auditory illusions; was very irrational, semicomatose at intervals and had occasional periods of acute mania.

The recovery was gradual and finally apparently complete. The temperature was not greatly elevated, usually normal or up to about 90°. The blood pressure remained between 190 and 200 systolic and 100 to 120 diastolic. The heart was enormously dilated and hypertrophied and the systolic and diastolic mitral and aortic lesions persisted.

By the next year the blood pressure had subsided to 168 systolic and 90 diastolic and the patient had improved, gained in weight but had persistent shortness of breath on exertion and frequent dizzy spells. Twenty months after the onset the patient had a sudden abdominal pain, followed by marked distention of the abdomen, persistent vomiting, marked shock and died the next day with a paralytic ileus. The course covers the period from July 28, 1931, to March 13, 1933.

Necropsy: There were no unusual findings on the external surface of the body except the healed ulcer back of

the left ear. The abdomen contained bloody serous fluid. There was an embolus in the superior mesenteric artery with thrombosis of the entire vessel. The corresponding intestine was dilated, purplish in color and was becoming gangrenous. In the spleen there were multiple small healed infarcts and the liver, spleen and pancreas were moderately edematous and congested.

The heart was hypertrophied and globular and the cardiac muscle was thickened. The tricuspid leaflets were smooth, slightly thickened but were competent and the pulmonic leaflets were unchanged. The mitral leaflets were markedly fibrotic, the edges irregular and on the free border were many fibrotic healed ulcerative areas. There were also a few rough pink vegetative processes, indicating a persistent active or subacute endocarditis as well as the old healed process. There were stenosis and incompetency of the valve. The aortic valve was also involved but not to the same extent. The leaflets were fibrotic and irregular and there were a few subacute vegetative processes. There was a moderate amount of atheromatous thickening in the aorta but no calcification. The lungs were passively congested and edematous. The rest of the examination was relatively of less importance.

The anatomic diagnoses were embolus and thrombosis of the superior mesenteric artery with paralytic ileus and gangrene of the intestine, healed and active endocarditis involving the mitral and aortic valves, cardiac hypertrophy, passive hyperemia of the lungs, liver and spleen and healed ulcer back of the left ear.

Case 2. A white male, married, wool grower, age 67, was bitten on the right side of the face over the zygomatic process by a deer fly. Three or four days later he began having fever, headache, general malaise, weakness and swelling over the area with swelling and tenderness of the lymphatic glands in the neck. Ten days later the infected site was opened and four days later, two weeks after the bite, he was admitted to the hospital in a delirious and semicomatose condition with a fever of 104°, pulse 90 to 100 and irregular rapid or Cheynes-Stokes respiration.

He complained of marked pain in the back of the head, appeared exhausted and had incontinence of urine. There was marked rigidity of the recti muscles, a positive Kernig sign, rigidity of the neck muscles and negative abdominal and patellar reflexes. The spinal fluid was clear and the cell count was none. There was a 4,500,000 erythrocyte count, 7,800 leucocyte count, 80 per cent hemoglobin, 46 mgm. of urea per 100 cc., negative Widal and Wassermann tests and the blood culture taken on admission gave no growth in forty-eight hours. The blood serum agglutinated the *Pasteurella tularensis* in a dilution of 1/40.

The patient's condition did not improve, the temperature remained between 100° and 104°, the coma increased and he died three days later, seventeen days after the deer fly bite (July 27 to August 13, 1933).

Necropsy findings: On examination of the body it was found to be emaciated but well developed. On the right side of the face just anterior to the tragus there was an irregular, ragged-edged lesion 2 cm. by 3 cm. with an eroded ulcerated center. On the left nostril and left lower lip were herpes labialis lesions. The lymphatic glands in the right side of the neck were palpably enlarged.

The left lung was moderately black with anthracosis and the surface was covered with a fibrinous plastic exudate which was most marked at the base and posterior surfaces of the lower lobe. The lobe separated easily from the parietal pleura and there was no collection of serum or liquid exudate in the pleural cavity. There were several small white, fibrotic infarcts in the lungs and scattered over the surface were many small whitish slightly raised spots in the pleura. The elevated centers of from 1 mm. to 2 mm. in diameter, contained necrotic material and sur-

rounding this area was a grayish zone. On incision of the lung there was a marked amount of bloody frothy fluid and the lobes were dark red because of passive hyperemia but there was no evidence of consolidation. Scattered throughout the lung were many small white abscesses similar to those on the surface. They were present in all parts but were more numerous in the lower lobe. The right lung was similar but the abscesses were less numerous and were confined to the lower lobe. The lymphatic glands in the region of the hilum were not appreciably enlarged and presented no lesions except carbon pigmentation.

The heart presented no evident enlargement, the epicardial fat was small in amount, the pericardial sac was smooth and contained only a small amount of serum, the muscles were of good texture and the endocardium was smooth. The mitral leaflets were thickened, irregular and sclerotic because of an old healed valvulitis of the rheumatic type and the tricuspid leaflets had the same condition but to a lesser extent. The aortic and pulmonic leaflets were smooth, the coronary arteries were patent and the intima of the aorta was thickened with irregular superficial yellowish atheromatous plaques without ulceration or calcification.

There was no free fluid in the abdominal cavity and the intestines were distended. The liver was slightly enlarged, brownish in color and the surface was studded with many small whitish abscesses, the largest not over 5 mm. in diameter. On incision the parenchyma was found to be brownish in color, the texture was firm and there were many small whitish abscesses similar to those on the surface scattered throughout the liver tissue.

The spleen was twice the normal size, bluish slate color, slightly wrinkled and on the superior surface were several small old white healed infarcts. Throughout the tissue were many scattered small, white abscesses similar to those in the liver.

The kidneys were grayish pink, edematous and the cut surfaces bulged.

The pancreas was not involved and there were no significant pathologic findings in the other organs. Permission for investigation of the central nervous system was not obtained. Cultures were impossible because the preliminary embalming injection had been done.

Microscopic examination: The picture of the lesions in the liver, spleen and lungs was essentially the same, varying only with the histology of the tissue involved. There was a central area of caseous necrosis, with amorphous material and chromatin granules from the nuclear fragmentation. Surrounding this was an area of monocytic infiltration with the presence of an occasional giant cell, and an increased amount of fibroblastic reaction. The surrounding tissue was congested and the cells edematous; in the lung the bronchioles were filled with leucocytes and exudate.

The anatomic diagnoses were multiple miliary abscesses (tularemia) of the liver, spleen and lungs with plastic fibrinous pleuritis, passive hyperemia of the lungs, toxic nephrosis and primary ulceroglandular tularemia. There was also an old healed endocarditis and arteriosclerosis.

COMMENT

In the first case it is certain that the patient was not bitten by a spider. The sudden, sharp, painful bite is typical of the attack of the deer fly and one must be exceptionally active to capture the insect before it leaves the site. Deer flies are not uncommon about Great Salt Lake. The only spider that is common at the resort is *Neoscona saleria Chamberlin*. It builds webs and feeds upon the gnats (*Ephedra hians* Say) that live part of their lives in

the brine of the lake. They are not poisonous and can be handled without being bitten.

It seems probable that the endocarditis was the direct result of the tularemia infection. The cardiac symptoms and physical signs developed during the active stage of the disease and the resulting incapacitation of the heart and terminal mesenteric thrombosis were the direct result of the endocarditis. At the onset a pulmonic involvement was evident.

The second case is typical of the rapidly fulminating type of tularemia, in which there is a bacteremia resulting in multiple miliary abscesses and marked toxemia. The duration of the disease, seventeen days, was too short for the agglutinin concentration in the blood to give a higher titre with the specific organism.

SUMMARY

A fatal case of tularemia gave clinical and pathologic evidence of endocarditis, not previously reported as a type of the disease, with resulting mesenteric embolus and thrombosis.

Another case terminating in seventeen days presented the typical miliary abscesses of tularemia in the liver, lungs and spleen with evidence of toxemia.

Both patients were bitten by deer flies (*Chrysops discalis* Williston) about the head and the disease was more severe with greater toxemia than in the usual ulceroglandular type, developing from the handling of infected rabbits.

601 Judge Building.

LARGE QUANTITIES OF FLUIDS INTRAVENOUSLY

PRINCIPLES AND PRACTICE FOR THEIR USE

C. R. JENSEN, M.D.

SEATTLE, WASH.

(Concluded)

BURNS

It has always been known that one of the most serious features of severe burns was the rapid onset of shock. The explanation of shock thus induced was the source of much speculation as to theories of shock production in general. For those who promoted the theory of some toxic element in shock, the absorption of toxic protein substances from the burned tissue was the easiest of assumptions. For those who sought to emphasize the nerve element in shock, the intense pain of burns afforded excellent circumstantial evidence.

In burns it is possible to combine some explanations of shock etiology, because the intense nerve

reaction of the pain may conceivably promote a fall in blood pressure and the development of the immediate or primary shock, which in turn may pass into secondary shock from the subsequent loss of fluid through exudation. This loss of fluid in burns, long recognized, has only in recent years come into full appreciation, and this has come about largely from experimental work on animals. It is worth while citing some of these experiments, if only to emphasize the degree to which fluid replacement may be necessary in our clinical work.

We have seen that one of the methods used by Blalock²³ in producing shock was burning of the animals' skin, and that the shock thus produced was entirely comparable to that by other methods of trauma, in that the amount of fluid lost from the blood in order to produce a given degree of shock was the same in burns as in other forms of trauma; no toxic factor was necessary to explain the shock and no evidence for any toxic factor was found. Underhill, Kapsinow, and Fisk,⁷ using rabbits, made a thorough study of many aspects of disturbance of fluid balance following burns. Some of their findings relating to our present topic are as follows: marked concentration of blood occurs during the first twenty-four hours following a burn; no absorption of importance from the burned area occurs during the first twenty-four hours; reabsorption then begins and continues for five or six days. There is no rise in body temperature due to dehydration during this initial period; a later rise may occur, due to absorption if the burned area becomes infected.

With a burn involving one-sixth of the body surface a loss of fluid may occur amounting to 70 per cent of the blood volume. The fluid lost is chemically like blood plasma; for practical purposes, blood plasma is the fluid lost. Brandson and Hillsman¹³ have translated some of these figures into terms of the human patient and deduce that an adult weighing 150 pounds with a blood volume of 5000 cc. would lose about 3500 cc. of fluid in twenty-four hours with a burn involving one-sixth of the body surface, and with one involving one-third of the body surface the loss of fluid in twenty-four hours would be equivalent to 140 per cent of the blood volume or 7000 cc.

A translation of such data gained from animal experiment into terms of human therapeutic application would lead us to the conclusions that fluid administration in our treatment of burns in the past has been very inadequate. It may startle some of us to think that during the first twenty-four

hours we could be giving 7000 cc. of fluid as replacement in the case of a burn involving one-third of the body surface. As Brandson and Hillsman point out, however, we might at the same time remember that we have in the past regarded burns involving one-third of the body surface as fatal. As for the type of fluid to be used, the fluid lost is blood plasma, and to replace this with identical fluid would be the theoretical ideal.

There is no practicable way of securing large quantities of plasma and the use of 7000 cc. of whole blood, assuming any such quantity to be available, would more than double the number of blood cells and result in a plethora of cells (polycythemia) that might in itself be dangerous. As is so often the case, a common sense compromise could be made. The bulk of our replacement fluid would be isotonic saline. The addition of dextrose would contribute nothing of vital importance. The addition of sufficient whole blood to the solution at the beginning of the injection to the degree necessary to prevent or combat the development of any serious degree of shock, as measured by the blood pressure, could be carried on almost hour by hour as the indications warranted. And in the event that the whole blood could not be secured in the necessary quantity, acacia solution may be used as a mechanical supplement.

We may keep in mind figures such as 3500 or 7000 cc. of fluid as rough guides, depending on the individual case, but in practice it is unwise to think in so dogmatic a manner. In the treatment of burns, for example, we may guide our type and quantity of fluid administration by blood pressure and urinary specific gravity determinations. Hemoglobin and red cell determinations are said to be somewhat unreliable as an index of blood concentration in shock, but they may be useful as a rough measurement since simple methods of determining blood volume are not as yet available.

Summary

The loss of fluids during the first twenty-four hours in cases of burns is greater than commonly realized; this fluid is largely blood plasma and in case of shock should be replaced at least in part with blood or acacia solution, supplemented perhaps with isotonic sodium chloride.

INCREASED INTRACRANIAL PRESSURE

The use of hypertonic solutions by alimentary tract and by vein in the effort to reduce intracranial tension has become an important therapeutic procedure. Brain injuries, tumors and inflammatory edemas have all come in for trial. We will consider

only the phase related to intravenous use of fluids. The same principles operate that have been outlined before, but with certain special modifications.

We are aiming at the central nervous system, a portion of the general body tissues which has its own system of dynamics. It is encased solidly in a rigid bony framework. The fluid content of this bony case is divided into three parts: the cerebrospinal fluid, the fluid within the blood channels, and the fluid within the nervous tissue itself. Naturally, since this casing of bone is practically complete and rigid, and since fluid itself for all practical purposes is incompressible, the total content of fluid within it cannot vary, although the pressure which it is under can, and the relative distribution between cerebrospinal fluid, blood stream and tissue spaces is likewise subject to variations (the Monro-Kellie doctrine).²⁷ Any increase or reduction in the quantity of any one of the three will have to be compensated by an increase in one or both of the other two.

A small amount of fluid withdrawn by needle from the subarachnoid space is instantly replaced (so far as the total craniospinal content of fluid is concerned) by a compensatory dilatation of blood vessels within the case. Such dynamics merit consideration by anyone deliberately attempting to alter these fluid distributions. The fluid of the ventricles and subarachnoid space, commonly called the cerebrospinal fluid, is secreted by the cells of the choroid plexus of the ventricles, circulates through the ventricular system and out through the foramina of Majendie and Lushka, thence over the surface of the brain to be absorbed into the venous circulation through the pacchionian arachnoid filters. This fluid is a secretory product, osmotically similar but by no means chemically identical with blood plasma or lymph.

The cells of the choroid plexus are almost impervious to many things that pass through ordinary capillary walls with ease, and under normal conditions there is no demonstrable exchange between the cerebrospinal fluid and the intercellular fluids of the brain tissue which it surrounds. Although the cerebrospinal fluid is entirely separate from the intercellular fluid of the brain substance and there is no exchange between them through the pia mater or lining of the ventricles, they are each under the osmotic influence of the vascular system, through the choroid plexus and pacchionian filters in the one case, and through the capillaries of the brain tissue in the other. Any sudden alteration in the osmotic tension of the blood will be reflected in the cere-

brospinal fluid and in the brain tissue fluid at the same time.

Perhaps we usually think only in terms of the cerebrospinal fluid because this is the part most easily observable or measurable. The secretion of fluid from the choroid plexus can be checked and its escape through the pacchionian filters can be accelerated by the intravenous injection of hypertonic solutions; at the same time there will be an absorption of fluid from brain substance through the capillaries.^{28, 29} Naturally these fluid absorptions do not occur in the normal organism except insofar as they may be compensated by dilatation of the blood channels themselves, because the rigid bony case precludes any shrinking of its total content. However, if the bones of the skull are separated, as in hydrocephalus, or opened by operation, such fluid displacements may proceed to great lengths. Likewise, if the continuity of the bony case is unbroken, such withdrawal of fluids may still occur if there is some pathologic force within the cranium, such as tumor or hemorrhage. In this case the force is reduced by lowering resistance to it and often temporary vantage is thus gained. If the pathologic force is hemorrhage, this lowering of resistance to it would be undesirable.

With these special principles of craniodynamics in mind, let us turn now to the separate discussion of hypertonic salt solutions and of hypertonic dextrose solutions. In the case of hypertonic salt solution, as we have seen, the temporary withdrawal of fluid from tissues to blood is soon offset by the equalization of salt concentration in blood and tissue fluid, because the salt is so readily diffusible; the water temporarily drawn to the blood passes back to tissues, where salt concentration has now been increased beyond normal, and there must await dilution with water, a process which will cause edema in the usual sense, up to a normal salt concentration in order that the kidneys may be able to excrete the excess efficiently. In other words, the use of hypertonic salt solution, while resulting in transitory dehydration of tissues, would soon be followed by at least a potentiality for edema that would quite defeat the purpose.

When a brain under pressure is exposed by operation, one may actually observe the collapse of the arachnoid spaces and shrinking of the brain substance following the intravenous injection of strongly hypertonic solutions. The secondary refill-

28. Weed, L. H.: Effects of Hypotonic Solutions Upon Cell Morphology of Choroid Plexuses and Central Nervous System, *Am. J. Anat.* 32:253-276, Sept., 1923.

29. Forbes, H. S., Fremont-Smith, F. and Wolff, H. G.: Resorption of Cerebrospinal Fluid Through Choroid Plexus, *Arch. Neurol. & Psychiat.*, 19:73-77, Jan., 1928.

27. Cushing, H.: *Studies in Intracranial Physiology and Surgery*, Oxford Univ. Press, 1926.

ing of the brain tissue with fluid in two or three hours would usually not be observable in operations of short duration. One can only conclude that favorable reports on the intravenous use of hypertonic salt solution for such a purpose were due to the enthusiasm kindled by observing the initial improvement, and that after several hours the recurring stupor and coma in many patients were attributed to something other than the treatment used.

The conditions with hypertonic dextrose given without insulin and at a rate in excess of tolerance are similar but not identical. Here the temporary withdrawal of tissue fluid to blood stream with resultant dehydration of tissue might be maintained longer, if water is withheld and if the kidneys in the meantime were able to excrete the excess sugar before the tide returns to the tissues, as it were. Unlike excess salt, no extra water dilution of this sugar is required for renal excretion; or looked at in another way, some water is continuously being liberated by the oxidation of the dextrose in the tissues. Such reasoning represents the theoretical basis from which to approach the problem. The crucial point is whether the kidneys are able to get rid of enough sugar before it has returned to the tissues.

We must turn now to practical demonstration for the answer. Milles and Hurwitz³⁰ injected hypertonic solutions of dextrose and of saline into the veins of dogs and took observations of cerebrospinal fluid pressure extending over five to eight hours. There was always a consistent drop in pressure, lasting on an average of two hours and returning to a point higher than the previous normal after three hours. In a careful series of experiments on eighty-five normal subjects, measuring the changes in intracranial tension by means of the cerebrospinal fluid pressure following the intravenous injection of solution of dextrose varying from isotonic up to markedly hypertonic, Masserman³¹ has recently reported these results: There was an initial, slight and transitory rise in pressure following the injection of any strength of solutions, due probably to the temporary increase in venous pressure following any type of intravenous fluid injection. This was followed in the case of hypertonic solutions by a secondary fall in pressure, superseded in about three hours by a tertiary rise which often exceeded the original normal pressure. The effects were pro-

portionate to the amount of dextrose administered, which was as much as 185-200 gm. of dextrose in some patients. Headaches, backaches and peripheral nerve pain were complained of by those in whom the reaction was severe, and many of those receiving 185 gm. had in addition a rise in temperature.

He noted that, when "50 gm. or less in 20 per cent solution" were given, there were only slight changes in pressure and no symptoms; when "100 gm. or more in greater than 20 per cent concentration" were given, symptoms and pressure changes were more evident. He seems unaware that these results were due not to the strength of solution or total quantity, but in all probability depended on whether or not the tolerance rate (0.8-0.9 gm. per kg. of body weight per hour) was exceeded, because upon this, as we have seen, depends the presence in the tissues of free dextrose with its water binding properties. Thus we find our practical answer as to whether the kidneys excreting dextrose can make any important difference between the use of hypertonic dextrose and hypertonic saline solutions; the kidneys alone do not excrete enough sugar in the first three hours to prevent the return of water to the tissues.

On the other hand, it might be theoretically possible first to draw fluid into the blood stream with hypertonic dextrose and then draw it out by some other channel than the kidneys quickly enough to prevent the otherwise inevitable ebb-flow back into the tissues at the end of three hours. This is attempted by immediately starting hypertonic salt solutions, such as magnesium sulphate, into the alimentary tract in the attempt to draw fluid into the gut. These solutions would have to be strong enough to overcome the osmotic effects of the blood, already rendered hypertonic with glucose. Such combined procedures are said to be successful³² when skillfully used, and certainly their feasibility would have to be decided by experience with many cases. Some of the fatalities following operations on the brain are said to be due to a peculiar and unexpected sudden edema of the lungs. One wonders how many such cases are of those in which hypertonic solutions have been used intravenously, and whether analysis of the edema fluid might disclose a high content of dextrose?

These points are stressed at this time, perhaps unnecessarily labored, not so much with the thought in mind that any physician today charged with the treatment of some type of increased intracranial

30. Milles, G. and Hurwitz, P.: Effect of Hypertonic Solutions on Cerebrospinal Fluid Pressure, With Special Reference to Secondary Rise and Toxicity, *Arch. Surg.*, 24:591-601, April, 1932.

31. Masserman, J. H.: Effects of Intravenous Administration of Hypertonic Solutions of Dextrose with Special Reference to Cerebrospinal Fluid Pressure, *J. A. M. A.*, 102:2084-2086, June 23, 1934.

32. Personal Communication, Dr. George Swift, Seattle, Wash.

pressure might be tempted to use hypertonic salt solution, as with the idea of impressing us with the potential hazards to the brain in the use of hypertonic solutions in treating trouble elsewhere. The brain must be kept in mind. If tensions within the cranium are in a normal state, considerable latitude is possible in the use of such solutions; if they are not, unexpected trouble may spring from this quarter.

Summary

Hypertonic salt solution intravenously is contraindicated in the treatment of increased intracranial pressure. Hypertonic dextrose alone is likewise contraindicated in this condition and whether successful methods can be devised of combining hypertonic dextrose solutions intravenously with hypertonic salt solutions by alimentary tract remains to be seen.

DISEASES OF THE LIVER

Since liver glycogen is the chief source of blood sugar, disease of the liver may result in varying degrees of disturbance in carbohydrate metabolism. The recognition of this has led to the use of high carbohydrate intake in the management of patients with hepatic deficiency and in surgery on patients with liver trouble to the addition of dextrose to intravenous solutions with the deliberate intention of sparing the liver and perhaps of assisting carbohydrate metabolism in the body generally because of this liver deficiency. The same principles as outlined above apply to the use of dextrose intravenously in this instance with this important modification: insulin should not be used in the presence of liver disease unless absolutely necessary because of a concomitant diabetes.

The reason for this is clear. Insulin in the organism with a normal liver decreases the glycogen, if food (dextrose) is withheld, and retards glycogen deposit, even if dextrose is given at the time;³³ in the damaged liver it may still further reduce the already depleted stores of liver glycogen.³⁴ Further, there is some evidence to show that real additional damage to the liver cells by a pathologic deposit of fat in them may occur from the glycogen depletion alone, the influx of fat occurring simultaneously with the decrease in glycogen.³⁴ Clinicians who are experienced in the management of diabetes mellitus are familiar with the difficulties of insulin adjustment in the diabetic patient who has liver disease. Reported benefits from the use of dextrose and in-

sulin in liver disease have probably been due to the use of the dextrose alone and in spite of the addition of insulin.

Summary

Dextrose is useful in the management of cases with hepatic deficiency. Insulin should be avoided if possible in cases of hepatic deficiency.

CIRCULATORY FAILURE

There is a growing tendency in recent years to observe more carefully the blood volume in various types of circulatory collapse and to distinguish between cases in which there is an increase in the circulating blood volume and those in which there is a decrease. Terms such as plus and minus forms of decompensation have been proposed,³⁵ and it is possible that some such terminology may become generally popular in the near future as useful clinically descriptive terms that imply marked differences between types of what we have in the past loosely grouped together under some such phrase as heart failure, differences that imply important changes in our therapy. The plus types of decompensation or circulatory failure are those in which there is an increase in the circulating blood volume, the minus types those in which there is a decrease.

The most adequate stimulus for the systolic contraction of the heart muscle comes from the diastolic filling of the ventricle. A deficient diastolic filling of the left ventricle may be due to obstruction at or behind the mitral valve or to diminution in the total volume of circulating blood. When confronted with a condition of circulatory collapse, particularly in an acute febrile illness, we are perhaps too often inclined to attribute it to some toxic weakening of the heart muscle, whereas in reality the soft rapid pulse in many cases is due to reduction in effective blood volume. In a sense, surgical shock is a good example of acute circulatory failure of the minus type.

Chronic forms of decompensation of the so-called minus type include not only cases of peripheral failure but some cases that are primarily cardiac but in which there is a diminished blood volume. Certain cases of pulmonary stenosis, emphysema, a few cases of thyrotoxicosis and of mitral disease are thought to be of this type.³⁶ The use of digitalis in some of these cases would be contraindicated because it reduces circulating blood volume. The use of intravenous fluids in restoring blood volume in either acute or chronic forms of minus decompensation may yet prove to be of generally accepted value.

33. Barbour, A. D., Chaikoff, I. L., MacLeod, J. J. R. and Orr, M. D.: Influence of Insulin on Liver and Muscle Glycogen in the Rat under Varying Nutritional Conditions, *Am. J. Physiol.*, 80:243-272, April, 1927.

34. Althausen, T. L.: Effects of Administration of Glucose and Insulin on Glycogen Content of Normal and Experimental Damaged Livers, *Ann. Int. Med.*, 6:193-200, Aug., 1932.

35. Woolheim, E.: Compensation and Decompensation of Circulation, *Klin. Wchnschr.*, 7:1261-1265, July 1, 1928.

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SPORADIC OCCURRENCE OF BILHARZIASIS IN WASHINGTON *

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AND

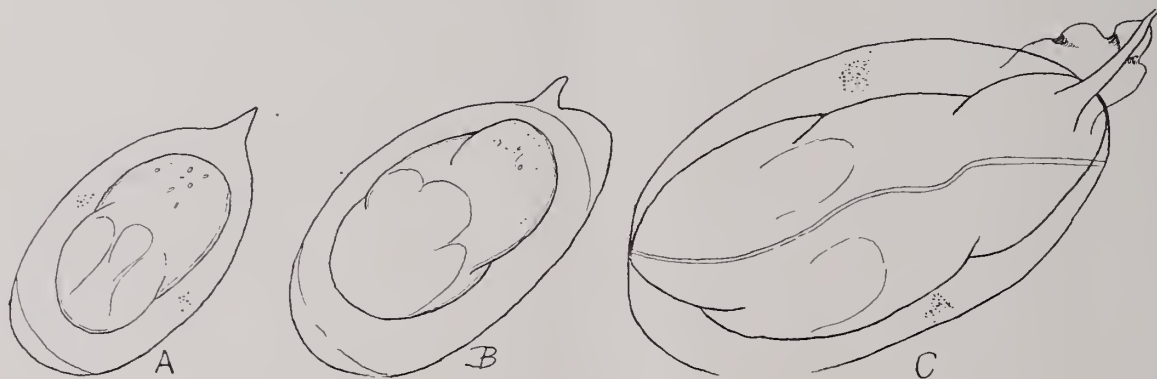
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Schistosomiasis or bilharziasis is a parasitic disease of man, the etiologic agent of which is the blood fluke *Schistosoma hematobium*. The disease is extremely common in Egypt and other regions of Africa as well as in India and Asia Minor. In the United States, however, it is rare, only nine cases having been reported previous to 1910. Cutler,¹ in 1926, reported a case and reviewed the literature on the subject. He found thirteen additional cases reported in the literature between 1910 and 1926. Since the latter date only four instances of the disease have been recorded in this country. Williamson² reported two cases in Virginia in 1931 and one year later Culver and Hoepfner³ reported a case in Illinois. Every instance of the disease up to this date

similar to the Egyptian species *Bullinus contortus*, the intermediate host of the parasite. Five instances of the disease have been recorded in Canada, occurring in each case in patients who had resided or traveled in Africa at some time.

The cardinal symptoms of bilharziasis are primarily vesical in nature and consist of burning, frequency, bladder tenesmus and hematuria. Rectal symptoms are common but not invariably present. These manifestations of the disease are due directly to its pathogenesis, since the adult parasites are found to migrate to and reside almost exclusively in that portion of the human vascular system comprising the radicles of the portal vein and the vesical and hemorrhoidal plexuses. In these locations occur the sexual phase of the parasitic cycle, the ova finding their exit from the host in the urine via the bladder mucosa and to a lesser extent also in the feces. Cystoscopic examination of the vesical mucosa usually reveals hyperemia, granulation and papillomatous overgrowths of the epithelium. The disease is usually not fatal and specific treatment



1. Appearance of ova as seen under microscope (low power). Form A is by far the most common. Type B shows the laterally placed spine. Form C was seen only in three

instances. It is apparently a more mature type as indicated by the greater relative and absolute size of the miracidium, and displays what appears to be an undulating membrane attached to the spine.

had occurred in a patient who at some time had lived or traveled in a region where the disease is endemic.

Sullivan,⁴ in 1932, reported the most recent appearance of the disease in America. His case is most interesting because for the first time bilharziasis was diagnosed in a patient who had never traveled outside of the United States. Sullivan believed the source of the infestation to have been aquarium snails found in the patient's household, which were

with antimony compounds is said to be highly satisfactory.

The present case report deals with the observation of bilharziasis in an adult who, like Sullivan's patient, had never traveled outside of the United States with the exception of a trip into Mexico.

The patient was first seen in 1923 at the age of 32. His complaint at that time was of a urethral discharge which was of an apparently nonspecific nature. The family history was negative and the past history revealed inflammatory arthritis involving the hips and knees at the age of 21 and typhoid fever as a child. The latter disease was supposed to have left him with a bad heart.

The physical examination in 1923 was essentially negative with the exception of a blowing systolic murmur heard at the apex of the heart and a slightly enlarged prostate, the secretion of which showed 2-10 pus cells per high power field with no bacteria. The urinary analysis was negative

* Read before a meeting of Providence Hospital staff, Seattle, Wash., Jan. 8, 1935.

1. Cutler, M.: Bilharziasis in United States and Canada. J. A. M. A., 86:816-818, March 20, 1926.

2. Williamson, T. V.: Urinary Bilharziasis. Virginia M. Monthly, 58:449-454, Oct., 1931.

3. Culver, H. and Hoepfner, W. F.: Vesical Bilharziasis. J. Urol., 27:189-200, Feb., 1932.

4. Sullivan, S. J.: Schistosoma Hematobium; Sporadic Case in Illinois. J. A. M. A., 98:1642-1643, May 7, 1932.

as was also the blood Wassermann. The urethritis disappeared with routine treatment and the patient was discharged.

During the following year, however, he complained of several attacks of migratory arthritis, right lumbar pain and hematuria. A cystoscopic examination in 1924 revealed a reddened, hyperemic bladder mucosa with no evidence of ulceration. The ureters were catheterized and a culture of staphylococcus was obtained from the right kidney. Bilateral retrograde pyelograms were normal.

During the succeeding seven years the patient was under the care of various physicians for the treatment of recurring arthritis of the ankles, knees, hips and shoulders and hematuria. Exacerbation of the arthritic symptoms was always preceded by lumbar pain and oliguria with blood in the urine.

The patient was admitted to Providence Hospital for the first time in 1928. The physical examination was again negative excepting the cardiac murmur mentioned before. The urine was decreased in amount and showed hyaline casts, albumin and red cells constantly. The blood chemistry was normal as was also the erythrocyte count. The leucocytes were increased to 13-19,000 per cmm. and the temperature was remittent, never rising above 101° F. The patient improved with rest in bed and symptomatic treatment and was discharged.

The patient spent the next few years in California and was seen by us again in August, 1934, when he was admitted complaining of severe lumbar pain and arthritis of the ankles and knees. Examination showed left cardiac hypertrophy with a blowing systolic murmur at the apex. There was tenderness over the right flank and the liver; spleen and kidneys were not palpable. Both knees and ankles were reddened and exquisitely tender. The urine was decreased in amount and showed red cells and albumin constantly but no casts were found. The blood count showed a slight secondary type of anemia and leucocytosis. The temperature rapidly fell to normal after admission and the arthritis was promptly relieved by salicylates. The patient was discharged and readmitted in one month. The findings were as before except that on this occasion the arthritis affected the hips and upper extremities. Again the patient improved rapidly and was discharged.

Final admission was in December, 1934. At this time the arthritic symptoms were not pronounced, being seen only to a minor degree in one elbow. His chief complaint was oliguria and chest pain. The latter symptom was of the "constricting" type and was accompanied by paroxysmal dyspnea and smothering sensations.

Examination revealed a well marked pericardial friction rub which persisted. The abdomen was tympanitic and distended. No ascites or dependent edema was noted. There was a well marked tenderness over the epigastrium and both costovertebral angles. The urine was decreased in amount and showed red cells and albumin constantly but casts were never found in any of the daily analyses. The blood count showed a secondary type of anemia and a normal leucocyte count. The blood pressure was 90/60. The temperature was of a low grade, remittent type and exceeded 101° F. only on one occasion. The blood chemistry was normal and blood cultures negative. Cystoscopic examination revealed hyperemia and granulation of the bladder epithelium. Pyelography was negative except that it showed a ptosis of the right kidney. Red blood cells were not found in the urine collected from the ureteral catheters but were constantly present in the voided specimens.

The course of the patient was gradually down hill. The dyspnea, which was moderate first, became progressively worse, requiring morphine for its control. Roentgenograms

of the chest showed extreme cardiac enlargement but no pericardial fluid could be demonstrated. The urine continued to be decreased in amount but the kidneys responded moderately to xanthine diuretics. The abdomen was constantly distended without the presence of ascites or evidence of intestinal gas in excessive quantities. There was considerable rectal tenesmus and the patient was unable to expel either gas or small enemata which were given. By the nineteenth hospital day he had become very weak with a very rapid and barely perceptible pulse. Dyspnea and restlessness were extreme. On this day the urinary output measured 180 cc. and routine examination revealed the ova of *Schistosomum hematobium*. The following day the patient died. A catheterized postmortem specimen of urine again revealed the ova in great numbers. Unfortunately postmortem examination was not allowed.

The ova found corresponded in size and morphology with those of *Schistosomum hematobium* as described elsewhere. Comparison further revealed them to be identical with preserved specimens in the collection of Dr. John Guberlet, Professor of Parasitology at the University of Washington. The terminal spine was prominent in all ova examined and an occasional ovum presented a laterally placed spine. A few ova were found that displayed what appeared to be an undulating membrane attached to the spine. The convoluted miracidium was prominent in all ova and in favorable specimens the head glands and stomach were visible (fig. 1). No movements of the miracidium were noted as neither of the urine samples examined was fresh. The feces were not searched for the ova and no adult worms were secured.

COMMENTS

The refusal of postmortem examination has made impossible the complete understanding of this case. Whether the clinical picture was that of schistosomiasis per se, or whether the infestation was merely concomitant with a superimposed rheumatic infection must remain a matter of conjecture. We incline to the latter view, although repeated diligent search for foci of infection was without success.

In general, embolic symptoms are rare in bilharziasis, although hepatic and pulmonary complications are described. The duration of the infestation is questionable. It is possible that the earlier urinary manifestations were the result of a separate nephropathy which subsequently subsided and the hematuria of the later admission was due to the parasitic invasion. This explanation is strengthened by the fact that casts were consistently absent from the urine during the most recent admission, although albumin and evidence of some kidney infection were found. While the duration of schistosomiasis is said to average only three years, many cases of the disease extending over much longer periods have been recorded.

We have no hypothesis concerning the source of the infestation. Direct questioning of the patient failed to reveal any journey outside of the United States with the exception of a trip into Mexico. This journey is probably without significance, since bil-

harziasis is apparently as rare in that country as it is in the United States, although definite information on the subject is lacking.

This case report is not intended to add materially to the existing knowledge of bilharziasis. It is presented mainly to draw attention to a sporadic occurrence of the disease on the Pacific Coast without any obvious source of infestation and the necessity of considering this disease in the diagnosis of hematuria of obscure origin.

INTRAPULMONARY INFECTION OF BRONCHOGENIC ORIGIN

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Bronchogenic extension of intrapulmonary infection from one lung across to the other has been observed frequently in the routine examination of roentgen films during my experiences at various hospitals. Such extension of infection from one lung, in which destruction of pulmonary tissue has taken place, gives rise to infection in the opposite lung and is no doubt an autogenous infection, due apparently to the inhalation of infectious exudate and detritus, as it is most frequently observed in the presence of a breaking-down or cavitation of a caseous tuberculous lesion, though it may also occur from other intrapulmonary suppurations and destructive lesions.

The studies carried out in Krause's laboratories in Baltimore¹ have shown the presence in the walls of the larger bronchi of small nests or pockets of lymphatic tissue, covered only by a thin layer of bronchial mucosa. Krause believes that these islands of lymphatic tissue drain the bronchial mucosa, that tubercle bacilli which invade them are carried thence through lymphatic channels into the thoracic duct which in turn conveys them to the venous blood stream in the neck, whence they ultimately find lodgment in the pulmonary tissue by way of the pulmonary artery. It is quite conceivable that pyogenic organisms also find their way into these islands of lymphatic tissue, whence they, too, may reach the lung by way of the pulmonary artery. These small islands of lymphatic tissue may also be invaded by a more virulent organism which destroys the lymphatic tissue and the contiguous pulmonary tissue, resulting in suppuration and destruction. The destruction of these pockets of

lymphatic tissue by a bronchogenic spread or extension of the infection could well result in multiple saccular dilatations of the bronchi or honeycombed cavitations.

Whatever may be the part played by these islands of lymphatic tissue, there can be little doubt of the bronchogenic origin of intrapulmonary supuration, as demonstrated by the important experimental work of Smith,² Crowe,³ Scarff,⁴ Allen,⁵ Myerson,⁶ Van Allen,⁷ Hill,⁸ Miller⁹ and others.

When the destructive lesion involves particularly the right upper lobe (fig. 1), one would expect aspiration infection of the right lower lobe to precede bronchogenic cross-infection, as the bronchus to the right lower lobe is an almost direct continuation of the trachea. This type of secondary infection does occur, of course, quite frequently, usually in association with bronchogenic extension, but the infection is largely limited to the peribronchial tissue and those alveoli adjoining the bronchi. The secondary infection in this region does not as a rule involve the peripheral parenchyma to the extent that it is involved in bronchogenic cross-infection.

Bronchogenic extension in cross-infection may occur in any part of the opposite lung, but in reviewing a large series of roentgen films, made in the usual upright posteroanterior stereoscopic exposures, the area involved is between the second and fourth ribs. In the early stage there will usually be found a limited focus of infection somewhere in this area (fig. 2), while later the entire area will be involved and extending out to the periphery (fig. 3).

Most frequently the original infection is found in the right upper lobe and spreads to the left lung, but figure 4 shows an example of the original infection being in the left upper lobe with the bronchogenic secondary infection into the right lung, and the site of predilection being relatively the same.

In the ordinary type of subacute pulmonary tuberculosis of the adult the lung apices of both upper lobes are very frequently involved. The

2. Smith, D. T.: Experimental Aspiratory Abscess. *Arch. Surg.*, 14:231-239 (part 2), Jan., 1927.

3. Crowe, S. J. and Scarff, J. E.: Experimental Abscess of Lung in Dog. *Arch. Surg.*, 16:176-178 (part 2), Jan., 1928.

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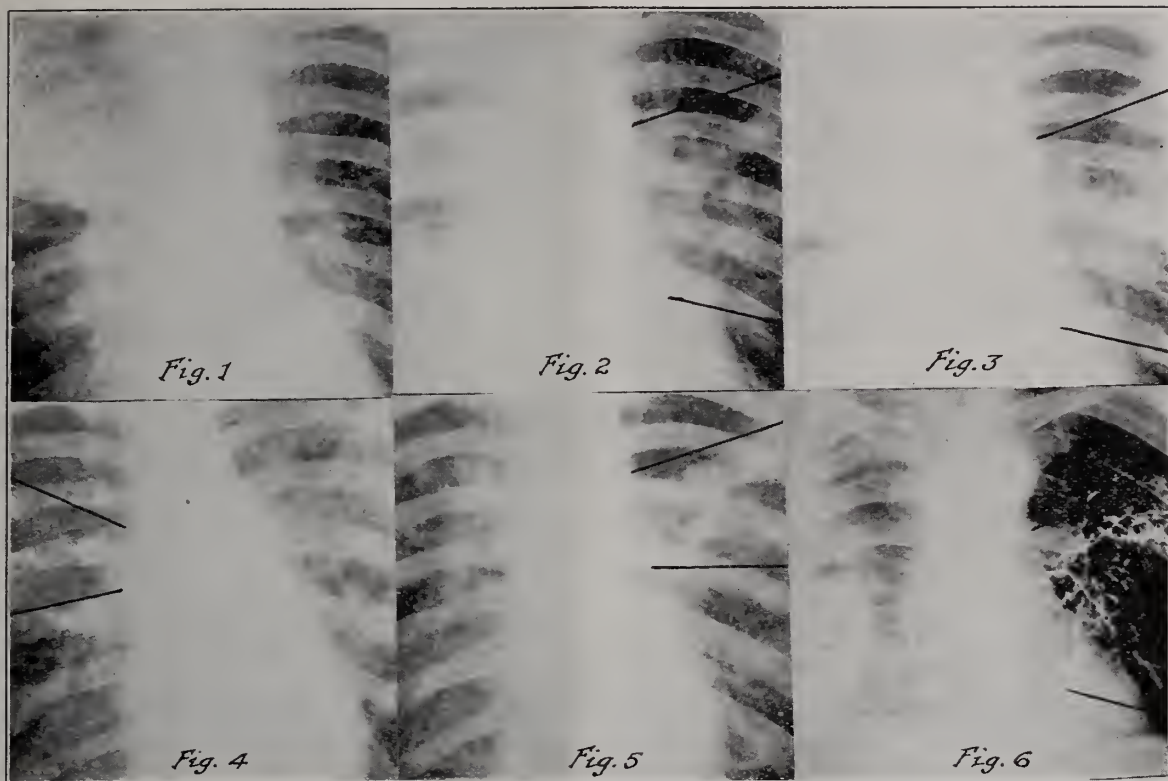


Fig. 1, Case 1. Feb. 28, 1933. Diffuse infiltration with almost complete excavation of right upper lobe. At this time there is no secondary infection into the left lung.

Fig. 2, Case 1. June 20, 1933. Partial collapse of right lung has been performed. At this time the area of bronchogenic cross-infection was first recognized in the left lung; note site of predilection opposite second to fourth ribs.

Fig. 3, Case 1. Sept. 1, 1933. Shows progressive involvement of the right lung. At this time very extensive involvement of the left lung is seen; still remaining in region of site of predilection.

Fig. 4, Case 2. May 5, 1930. Tuberculosis of left lung with presence of small cavitation. Bronchogenic extension

of infection is seen in the right lung opposite the second to fourth ribs.

Fig. 5, Case 3. Nov. 28, 1932. Tuberculosis of right upper lobe. Secondary or bronchogenic cross-infection of the left lung. This condition is most frequently seen.

Fig. 6, Case 4. April 2, 1930. "Bronchial spill" or artificially demonstrated site of predilection of intrapulmonary material from the right lung into the middle of left lung by gravity. Patient lying on left side and lipiodol injected through drainage tubes into right chest. Through a bronchial fistula the lipiodol reached the main right bronchus, gravitated around the bronchial bifurcation into left bronchus and out into the parenchymatous tissue opposite the second to fourth ribs.

lesions in the two lungs may be relatively of the same age and distribution, or the lesion on one side may be very apparently of longer duration and more widespread than that on the opposite side.

When the lesions are of different ages it is generally impossible to determine whether the younger infection is exogenous or an example of autogenous bronchogenic extension. The usual conception has always been that these are examples of autogenous bronchogenic cross-infection.

In all the cases of destructive pulmonary lesions which the author has followed closely cross-infection has always developed in the part of the lung fields projected between the second and fourth ribs on the roentgen films (fig. 5). The evidence would, therefore, indicate that bronchogenic extension of infection to the apical region of the opposite lung is very unusual.

The question very naturally arises as to what the mechanical factors are which produce cross-in-

fection and make the middle of the opposite lung the site of predilection. Consider for instance the left lung. The site of predilection is in continuous line with the direction of the left main bronchus; it is, therefore, reasonable to believe that material aspirated into this region follows the path of least resistance beyond the termination of the left main bronchus, as illustrated on figure 6. When lipiodol was injected through drainage tubes in right chest wall into an old empyema cavity while patient was lying on his left side, the lipiodol reached the main right bronchus through a bronchial fistula, gravitated around the bronchial bifurcation into the left main bronchus, and then out toward the periphery opposite the second to fourth ribs, the site of predilection. The corollary is, therefore, that this part of the left lung is the site of predilection, because the bronchi supplying it are the most direct continuation of the left main bronchus.

This secondary lesion is almost always peripher-

ally situated and involves the parenchyma of the lungs. The infectious material must, therefore, be aspirated into the air vesicles proper. Prolonged maintenance of one posture, such as lying upon the left side when right lung is primarily involved, apparently gives opportunity for the material to drain into the parenchyma of the lung, as was demonstrated artificially in case 4, figure 6. Consequently, patients with suppurative or destructive pulmonary lesions should always be instructed about the reason why they should not lie or sleep on the normal side.

CONCLUSIONS

Bronchogenic extension of pulmonary infection from one lung into the middle of the opposite lung is quite frequent; therefore, patients with destructive infectious lesions in one lung should be definitely instructed not to rest or sleep on the normal side.

The site of predilection of bronchogenic cross-infection usually develops in the middle of the opposite lung, that part of the lung which is seen between the second and fourth ribs on roentgen films. The site of predilection is apparently in the path of least resistance beyond the termination of the main bronchus.

Estimation of prognosis in any given case of pulmonary infection does not depend entirely upon the progress or retrogression of the original area of infection, but it is necessary to take into consideration whether or not there is a secondary infection of other parts of the lungs.

Knowing, therefore, that destructive types of pulmonary infections have a definite tendency to bronchogenic extension and that there is a site of predilection, that part of the lung which is the site of predilection should be studied closely on the roentgen films in order to detect at an early stage the development of secondary infection.

STRICTURE OF THE URETER IN CHILDREN

REPORT OF CASE

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The youngest patient coming under our care, in whom retrograde pyelography demonstrates a stricture of the ureter, was admitted February 12, 1935, with a history of having had recognized pyelitis



Fig. 1. Showing stricture near left ureteral orifice less than one centimeter from bladder, with dilatation above it, and a narrowing near the kidney.

since the age of two and a half years. Her first symptoms were general convulsions, and an alert pediatrician ascertained the cause by culturing the urine. Repeated cultures have produced growths of *B. coli*.

The young lady, eight years of age, has been treated for five and a half years by the alternate alkaline-acid method, and by autogenous vaccines, and although she has remained for as long as a year without symptoms, finally they always recur.

Her urethra admitted a Brown-Buerger No. 18 F. cystoscope with surprising ease. The bladder urine was straw colored and clear. There was slight redness around the left ureteral orifice. An ureteral catheter No. 6 was introduced into the ureter, and met definite obstruction less than one centimeter up, which it would not penetrate. A number 4 catheter passed this obstruction, and through it sodium iodide was carefully injected and a pyelogram taken (fig. 1). This picture shows very plainly an area of constriction at the point where the No. 6 catheter met resistance, and considerable dilatation of the ureter above it.

A pure culture of colon bacillus was obtained from the kidney, from which an autogenous vaccine was developed. In addition to local treatment of dilating, instillations, etc., we are advocating and employing the "four point" treatment of Crance.¹

1. Crance, A. M.: The Necessity for Standardization of Treatment of Bacilluria. *J. A. M. A.*, Jan. 26, 1935, Vol. 104, No. 4.

NORTHWEST MEDICINE

The Journal of the State Medical Associations of
Oregon, Washington and Idaho

Devoted to the Interests of the Medical Profession
of the Pacific Northwest

Editorial Office, 543 Stimson Building, Seattle, Wash.

MAY, 1935

EDITORIAL

WHO DEMAND ENACTMENT OF THE WAGNER BILL?

The Wagner Economic Security Bill, which is pending in the present session of Congress, covers a great variety of subjects, among which matters pertaining to public health and sickness are provoking much discussion and general interest. No class of people is more intimately interested in these phases of the bill than the physicians of our country, upon whom will devolve the task of caring for the dependents for whose benefit it is claimed the bill is intended. It is of interest to anyone making a study of this bill to inquire as to the identity of individuals and organizations working most actively for its passage. An editorial in a recent issue of the *Bulletin of King County Medical Society*,¹ published in Seattle, has propounded some pertinent questions which have been answered so convincingly that it is herewith produced substantially in its original form.

"The Wagner Bill would appropriate four million dollars per year for 'Maternal and Child Health.' The questions naturally arise: What necessity exists for the Federal Government to undertake this work? Are maternity and child health being neglected by the states? For our criterion let us examine some statistics. These show that infant mortality in the United States for the seven years preceding the Sheppard-Towner Act dropped from 100 to 76, or 24 points. During the seven years in which the experiment with this Act was carried on the drop was from 76 (1922) to 69 (1928), or only 7 points. During the five years after complete abandonment of Federal participation the rate dropped 10 points. What did this health experiment accomplish? Ask any obstetrician what was gained in the State of Washington, and his answer will be (unless he is on a public pay-roll) an unhesitating, 'nothing whatever.' It is not claimed that above mentioned unfavorable figures were due to the enforcement of this Act, but they evidence its ineffectiveness in producing anticipated results.

"Who demands passage of this Bill? As a famous

political figure often said, 'let's look at the record' now before the present Senate Committee which has it under consideration. This record is both startling and illuminating. Numerous state and local lay organizations sent representatives or wrote letters requesting passage of this Act. Probably they knew little or nothing of the actual situation in regard to the matters about which they so freely expressed themselves. It is very unlikely that these organizations made a thorough study of the matter. Was it the magic and sacred words, "Maternity and Infant Welfare," that prompted their activity, or were they inspired by the army of political propagandists, sociologists and so-called welfare foundations that seek to justify their existence, social workers, professional patronizers of the poor and others whose livelihood depends upon the appropriation of federal funds for this and that?

"Another interesting revelation is the universal demand that the 'Children's Department' be given administration of the funds that may be appropriated for maternity and infant health, thus establishing a lay dictatorship over medical work. This seems to be quite in keeping with the recent trend, and this will continue as long as the medical profession will accept such dictatorship. There can be no doubt that some of the organizations are actuated by only the highest motives, but many times the energy is misdirected. It is quite apparent that several of the groups which are zealous to have the Wagner Bill passed have little conception of the medical problems involved.

"Let us examine some of the representations at the hearing. The National Woman's Trade Union League of America reports: 'Maternal and infant hygiene has long been of great concern to us. . . . We are convinced that its most satisfactory administration will be by the Children's Bureau . . . with its background of experience and scientific knowledge.' Do these good women know that scientific medicine has made and is continuing to make rapid improvement in conditions of maternal and infant hygiene? By whom were they so solidly convinced that the Children's Bureau would give most satisfactory administration if not by the Bureau itself, and the perpetuation and expansion of a bureau is the first concern of a bureaucracy.

"The National Consumers' League urges the passage of the bill; the National League of Women Voters believes it 'will go far toward saving lives of mothers and babies and removing some of the hazards of childbirth and infancy'; the National Council of Jewish Women urges 'continuation of

1. Bulletin of King County Medical Society. 14:11-12, April 15, 1935.

Federal aid in maternity and infancy welfare'; the National Board of the Y.W.C.A. urges passage of the bill; the American Association of University Women urges that the Government 'resume safeguards of maternal and child health' by enacting this bill, and so on ad infinitum. Needless to say, many state and government officials acting in various capacities (particularly health commissioners of a large number of states), economists from state universities, representatives of social workers' associations, organizations for the blind and other handicapped persons, appeared before the committee. Extensive was the testimony of our friend Dr. Epstein of the Association for Social Security.

"From our own state we find in the record an endorsement from a former city health officer, as well as a letter from the 'Seattle Council of Parent-Teachers Associations,' stating 'leadership of the Federal Government through the U.S.P.H. service is imperative, if the various states are to expand and develop their state and local public health activities.' Are the facts of public health development impartially studied by the P.-T.A., or did they simply accept certain representations of one of their members? How long will we permit laymen having ulterior motives, government employees, paid propagandists, professional patronizers, reformers and pseudo-ologists to direct and dictate the work of the medical profession? And when we finally do awaken, will it be too late to preserve our independence?"

PUBLICITY FOR MEDICAL PROBLEMS

Whenever a group of physicians assembles for any purpose, inevitably there follows a discussion of some of the problems confronting the medical profession. Ofttimes a suggestion is evolved which might be of value if given suitable publicity. Oregon State Medical Society, through its committee on publicity, has taken cognizance of this fact and is providing a medium for the exchange of views that will be of mutual benefit to its members. To accomplish this purpose *The Medical Reporter* has been launched, whose objective is expressed as follows: "We have certain facts to present, facts that we consider important to all of the medical profession in Oregon. We shall devote our attention solely to legislative, social and political problems confronting the profession. We would not knowingly mis-say or misrepresent any matter, nor misquote any individual. We are not concerned with opinions and shall refrain from expressing any of the same. Subject to the limitations of space and our editorial judgment of the general character of the

material presented, these columns are open to any doctor of the state who has a fact or facts to offer."

This is a sixteen, small page, semimonthly publication. It does not propose to present scientific and technical papers nor indulge in newspaper personals, its purpose being solely to promote the interest of the profession as outlined in the above quotation. Its future development and influence on the profession of Oregon will be observed with interest.

LIBRARY BOOK MUTILATION

It is difficult to evaluate the mental attitude of an individual who makes use of a library book and deliberately mutilates it by cutting out pages containing a certain publication of interest to him. Such crass selfishness, producing irreparable damage to the library's texts as well as depriving other people of reading matter of equal importance to them, is unpardonable and utterly inexcusable. The immediate cause of this comment is the statement in a recent issue of *Pierce County Medical Bulletin* that a medical miscreant perpetrated the outrageous offense to the Tacoma Medical Library of cutting pages from more than one of the bound medical journals. This medical vandal, utterly regardless of the rights and privileges of his fellow practitioners, exhibited the gross selfishness of thus stealing information for his own personal use which justly belonged equally to all other patrons of the library. If the identity of such a conscienceless offender were revealed, he should be entitled to the contempt of all fellow practitioners. The least restitution possible on the part of such an offender, if he were possessed of a normal sense of justice, would be exhibited by replacing the mutilated material, thus atoning to some extent for the unpardonable offense.

JOURNAL REORGANIZED

Radical changes in the editorial staff and publication control have been announced for *Western Journal of Surgery, Obstetrics and Gynecology* of Portland. Under the able editorial management of Dr. Goodrich C. Schauffler the standing of this publication has been advanced to an admirable position in medical journalism. It has been established as official journal for Pacific Coast Surgical Association and Pacific Coast Society of Obstetrics and Gynecology. The arrangements which have been prepared for its future management and publication assure successful maintenance and expansion. Details concerning its editorial staff and future plans are presented in the announcement which appears on page 23 of this issue.

ANNUAL PACIFIC NORTHWEST MEETING

The annual meeting of Pacific Northwest Medical Association will be held in Spokane June 27-29 with headquarters at Davenport Hotel. The purpose of this meeting is to present to the physicians of the Northwest a group of educators who will detail the latest up-to-date information on the subjects in which they specialize. The following have been secured for this meeting. Loyal Davis of Chicago, Neurological Surgery; Fred W. Rankin of Lexington, Ky., General Surgery; J. Edwin Wood, Jr., of University of Virginia, General Medicine; George E. Brown of The Mayo Clinic, Cardiovascular Disease; Tracy B. Mallory of Massachusetts General Hospital, Boston, Pathology; A. B. Luckhardt of University of Chicago, Physiology. The lecturer on obstetrics will be announced later.

MEDICAL NOTES

AMERICAN ASSOCIATION FOR THE STUDY OF GOITER will hold its annual meeting in Salt Lake City, Utah, June 24-26. A program has been arranged covering many phases of the goiter problem both from the research standpoint and operative procedures. Papers are scheduled by representative surgeons from Canada, California, Colorado, New York, Minnesota, Pennsylvania, Oklahoma, Ohio, Utah, Washington, Kentucky, Michigan, Illinois and Oregon. These papers are sixteen in number, with a statement that others will be added. Also clinics are scheduled, both operative and dry.

AMERICAN PROCTOLOGIC SOCIETY will hold its thirty-sixth annual meeting at Atlantic City, N. J., June 11, with headquarters at Marlborough-Blenheim Hotel. A scientific program has been prepared with papers by leading proctologists from various parts of the country, bearing on many phases of rectal and anal disturbances. This meeting should prove of interest to all interested in that line of work.

AMERICAN NEISSERIAN MEDICAL SOCIETY will hold its first annual meeting at Hotel Claridge, Atlantic City, June 11. An interesting program has been prepared dealing with many features of gonorrhea and gonococcal infections.

OREGON

OREGON TUBERCULOSIS ASSOCIATION held a meeting at Pendleton, April 12-13, with an attendance of over one hundred, representing many sections of the state. An interesting and comprehensive program was presented, dealing with many tuberculosis aspects. It was stated that at the next session of legislature it was hoped provision would be made for increasing the beds at sanatoria both at The Dalles and Salem. An important feature of the discussions centered about the symposium "When a Community Plans for Health." The chief objective was the advocacy of the full time county health unit.

HOSPITAL ADDITION STARTED. Work has begun on the addition to the State Hospital at Salem, for which the recent legislative session authorized \$100,000 expenditure. An additional sum is expected from PWA appropriations. Also

the sum of \$56,000 was authorized for an addition to the tuberculosis hospital and \$50,000 has been appropriated for a dormitory for the state school for the blind.

HOSPITAL BENEFIT. A recent concert at Portland Auditorium, under the auspices of the Shriners and Rotary Club, resulted in a return of more than \$2000 for the benefit of the Shriner Hospital for Crippled Children. It is stated that the efforts of the Rotary Club during recent years have added a fund of more than \$12,000 to the work of this hospital in providing apparatus for crippled children.

A HALF CENTURY OF PRACTICE. Edward A. Pierce of Portland has practiced medicine for fifty years. He continues in active practice, a distinction which is attained by few after such long experience. On April 15 a banquet was tendered Dr. and Mrs. Pierce at Multnomah Hotel by Multnomah County Medical Society which was largely attended by their many friends from Portland and elsewhere.

BILLS CANCELLED. After the recent death of Frank M. Taylor of Portland, it was noted that the terms of his will requested that all records of patients and collections should be burned. It was asked that patients who felt they were able to pay their accounts should do so voluntarily. Portland daily newspapers suggested to the physician's patients that they should comply with this request.

SOUTHERN OREGON MEDICAL SOCIETY held a meeting at the Holland Hotel, Medford, April 3, with representatives present from other cities in that section of the state. W. H. Heckman was host for the dinner. L. D. Inskeep read a paper on "Diabetes."

HARRY H. ALVIS, recently from St. Louis, has located at Newberg, where he will take the practice of S. M. Wendt who has been located there for the past fourteen years. Dr. Alvis, a graduate of University of Iowa, was for a time located at the State Hospital at Iowa City.

WASHINGTON

UNIVERSITY OF WASHINGTON POSTGRADUATE COURSE OF LECTURES is scheduled for July 15-19. As usual, they will be delivered at Guggenheim Hall on the university campus. The faculty for this course includes Arthur E. Hertzler, professor of surgery, University of Kansas; Oliver H. P. Pepper, professor of medicine, University of Pennsylvania; P. J. Hanzlik, professor of pharmacology, Stanford University; R. S. Ferguson, urology, of Keyes, McLellan and Ferguson Clinic, New York. Each of these well known practitioners will deliver a series of lectures in his specialty, the titles of which can be noted on page — of the advertising section of this issue. Clinics at King County Hospital and other educational features are included in the course.

HOSPITAL ENLARGED. The Rowley General Hospital of Mount Vernon, owned and operated by Mrs. H. Rowley, has been enlarged from a small maternity hospital to a twenty-six-bed modern institution. A staff was recently organized, including many of the leading physicians of the city. In 1921 Mrs. Rowley opened a maternity hospital in an old private residence, to which additions have been made from time to time until the present hospital was completed, representing an investment of about \$20,000.

ADDITION TO TUBERCULOSIS SANATORIUM. Lewis County Commissioners have called for bids for the construction of a one story addition, 36 feet square, to Rock Creek Sanatorium. It is estimated that the improvements will cost about \$10,000.

TRI-COUNTY SANATORIUM ABANDONED. The much discussed plan of constructing a tuberculosis sanatorium by Whatcom, Skagit and San Juan counties has been abandoned, owing to a recent decision of the State Supreme Court determining that Skagit and San Juan commissioners have no funds available for this purpose. Whatcom county commissioners have contemplated purchasing and remodeling the old Fairhaven hotel in South Bellingham for a sanatorium, approved by the State Department of Health, which it is estimated can be utilized for this purpose at a saving of money now expended for the treatment of tuberculous patients in hospitals located elsewhere.

HOSPITAL ASSOCIATION MEETING. Washington State Hospital Association held a meeting at King County Hospital, Seattle, April 6, with an attendance of sixty-five superintendents and administrators. The subject was a discussion of economic conditions affecting hospitals of the state. Officers for the ensuing year are: president, Karl H. Van Norman, superintendent of King County Hospital; secretary, A. C. Jordan, assistant superintendent of King County Hospital.

ADDITION TO STATE HOSPITAL. Governor Martin has authorized immediate preparation of plans for the new \$280,000 ward building for male patients at Medical Lake Hospital. It will be an extension of the south wing to the new psychopathic ward building which will be ready in a short time.

NEW HOSPITAL CONSTRUCTION. A new hospital is being built at Sequim, a modern twenty-bed institution on property formerly belonging to the American Legion. It will be a frame building, 32 by 80 feet, with cement basement. There will be two wards and six private rooms.

HEALTH OFFICER RESIGNS. R. W. Armstrong, health officer in charge of county-city health department at Vancouver, has resigned. He was county physician at the county hospital until last July when he was placed in charge of the health department. The county commissioners have appointed as his successor Clyde Hutt, at one time on the staff of Clark General Hospital and recently surgeon on a government vessel in Alaska.

HOSPITAL REOPENED. The hospital at King County jail, Seattle, has been reopened for the treatment of jail patients. It has not been in use since shortly after the jail was constructed, six years ago.

PRIZE ESSAY DETERMINED. The Woman's Auxiliary to Skagit County Medical Society has recently sponsored a prize essay contest on the subject, "Contribution to Scientific Medicine in the Last Century." Last month it was announced that first prize was awarded to Miss Clara Rodnelt of Edison, while Miss Elizabeth Koudal of LaConner received the second prize.

R. K. BEHRNS, who has practiced for several years at La Conner, has moved to Mount Vernon where he will continue in practice. His wife, Dr. Hilda Behrns, will be associated with him as a pediatrician.

APPOINTED FEDERAL SURGEON. Walter Kelton of Seattle has been appointed surgeon to federal prisoners in place of Don H. Palmer, resigned, who has served in that capacity for a number of years.

WALTER H. EBELING, who has practiced for a number of years at Burlington in connection with the Cleveland Clinic, has moved to Mount Vernon where he has taken over the equipment of Dan M. Prince, recently deceased.

HEALTH OFFICER RESIGNS. W. H. Brandt of Auburn has resigned as city health officer. W. C. Aylen has been appointed to fill his unexpired term.

S. W. HOLTON, who has practiced for the past ten years at Sedro-Woolley, has moved to Tacoma, where he will be established for practice in the future.

F. W. BAUGH, who has practiced for the past three years at Mount Vernon, has moved to Burlington where he will be associated with the Cleveland Clinic.

MYRTLE A. RICE, who has practiced for the past four years in Spokane, has located in Seattle. Dr. Rice is a graduate of University of Colorado School of Medicine.

H. L. HOPKE, for some time a practitioner at Everson, has moved to Sedro-Woolley, where he will continue medical practice.

IDAHO

POSTGRADUATE COURSE OF LECTURES. In connection with the annual meeting of Idaho State Medical Association at Boise, September 9-13, a postgraduate course of lectures will be inaugurated. The lecturers selected are all members of Northwestern Medical School faculty. They are William R. Cubbins, L. A. Crandall, William H. Holmes, George H. Gardner and John A. Wolfer. This is a very ambitious undertaking for the Idaho association and will offer an exceptional opportunity of study for the profession of the state.

HEALTH CONDITIONS IN IDAHO are a constant subject of discussion in the papers, centered of late around the deficient water supply at the state hospital at Blackfoot. It is alleged that the health of the inmates is imperiled by the lack of water due to failure of existing wells. At the same time a scarlet fever epidemic in another part of the state has added to the discussion of unsatisfactory health conditions. These controversies have served to emphasize the unfortunate legislative failure to adopt a modern state department of health, guided by medical officers trained in public health work. Sufficient agitation on this matter with continued publicity will doubtless bring future satisfactory results.

NEW INFIRMARY TO BE BUILT. At the University of Idaho at Moscow a new infirmary will soon be constructed in accordance with a bill which passed the recent session of the legislature. Funds for construction will be obtained from PWA appropriations. Now it is expected that construction will proceed to the completion of the infirmary.

SOCIETY REORGANIZED. On April 5 Idaho Falls County Medical Society was reorganized at Idaho Falls. The following officers were elected for the ensuing year: President, J. W. West; vice-president, E. A. Cantonwine; secretary-treasurer, H. B. Woolley; delegate to meeting of State Medical Association, H. L. Willson, alternate, C. M. Cline, all of Idaho Falls.

APPOINTED COUNTY PHYSICIAN. Lewis County commissioners, meeting at Nezperce last month, appointed K. H. Collins of Craigmont county physician and health officer. He succeeds Eli Taylor, resigned. Dr. Collins' territory will include all but the Kamiah highway district which will be under the charge of C. H. Bryan on a contract basis.

R. R. MERRELL, who has practiced for the past three years at Brigham City, Utah, has moved to St. Anthony, where he has taken over the practice of P. M. Kelly. He is a graduate of University of Utah and the Medical Depart-

ment of Washington University at St. Louis. Dr. Kelly has sailed for Europe, where he will become president of the Swiss-German L.D.S. church mission.

JAPANESE WOMAN PHYSICIAN. Dr. Kimi Nojima, a native of Seattle and now a resident of Idaho Falls, will begin practice in Pocatello. After graduating from University of Idaho she obtained her medical degree from University of Michigan Medical School and later served several years as an interne in a New York hospital.

REAPPOINTED COUNTY PHYSICIAN. Mary Callaway of Boise has been reappointed Ada county physician. She has served for two years in this capacity. She served as representative in the recent state legislature.

W. W. BECK, JR., has located for practice at Rexburg where he will be associated with H. B. Rigby. Dr. Beck recently graduated from University of Pennsylvania Medical School and has interned at Oakland City Hospital, California.

J. W. MALZACHER, who has practiced for the past four years at Twisp, Wash., has moved to Cottonwood where he will be engaged in future practice.

G. W. KITTLEBERGER, formerly located at St. Luke's Hospital, Spokane, has located for practice at Grangeville, Idaho.

OBITUARIES

DR. DAN M. PRINCE of Mount Vernon, Wash., died April 11, apparently from an acute heart affection, aged 38 years. He had been actively engaged in practice the previous day and while known to have some heart disturbance the sudden fatality was not anticipated. He was born in Lauberg, N. C., in 1897, son of a prominent physician. He obtained his medical degree from University of Virginia in 1924. After three years service as interne at University of Virginia Hospital, he spent a year in South America as surgeon for Standard Oil Company. He spent the next year in Alaska and located in Mount Vernon in 1929. On account of his pleasing personality and recognized ability as a physician he acquired a large practice and endeared himself to a wide circle of friends.

DR. CHARLES E. BUTTS of Spokane, Wash., died March 31, after an illness of three weeks, aged 51 years. He was born in Iowa in 1884 and obtained his medical degree from State University of Iowa College of Medicine in 1908. He located for practice in the Colville Valley 1909 and settled in Spokane in 1911. During the World War he was located at Fort George Wright and later went to France. He was discharged from the war with the rank of major and has since been appointed Lieut.-Colonel in the Medical Reserve Corps. He was a successful practitioner and by his pleasing personality made many friends both among the medical profession and the public. His death is a distinct loss to the medical profession of his city and the state.

DR. HENRY C. FULTON of Asotin, Wash., died at St. Joseph's Hospital, Lewiston, Idaho, after a short illness, March 24, aged 82 years. He was born at Burgettstown, Pa., in 1852. He graduated from Jefferson Medical College, Philadelphia, in 1875. After practicing three years in Pennsylvania he moved to Harper, Kansas, in 1878, where he continued until 1883 when he moved to the Puget Sound region, Washington. He located in Asotin in 1884 where he lived until his death. He took a prominent part in community affairs, being mayor of the city for four terms and a

member of the school board for seventeen years. He was county coroner for one term and served two terms in the House of the Washington legislature. He was a real pioneer of that section of the country with a wide acquaintance and influence.

DR. JOHN T. COLEMAN of Chehalis, Wash., died April 20 of disease of the heart, aged 78 years. He was born at Cincinnati, Ohio, in 1857. He graduated from Medical College of Ohio in that city in 1884. He located for practice at Hutchinson, Kan., coming to Washington Territory in 1885 and settled at Chehalis. He has taken an active part in civic affairs, serving as mayor of the city from 1911 to 1917. He was an officer of the city commercial club and served many years at various times as county health officer. He has taken a part in political affairs at various times. His wide acquaintance made him a leading and valuable citizen.

DR. MARK TENNEY PHY of La Grande, Ore., died at Portland, March 29, of bronchopneumonia, aged 36 years. He was born in 1898. He was the son of W. T. Phy, many years the owner and surgeon of Hot Lake Sanatorium. He received his medical degree from University of Chicago Medical School in 1926. Following the death of his father a few years ago, he operated the sanatorium until it was acquired by the present owner, since which time he has been a member of the staff. In recent years he also carried on an intermittent practice at Baker, specializing in roentgenology.

DR. FRANK M. TAYLOR of Portland, Ore., died April 1, aged 61 years. He was born near Halsey, Ore., in 1873. After attending grade schools, he graduated from the University of Oregon in 1896. He engaged in farming and railroad work, later studying at University of Oregon Medical School, from which he graduated in 1901. For many years he was connected with the medical department of O.-W. R. R. & N. Later he was chief surgeon of the Union Pacific railroad in Portland.

DR. WM. J. ERKENBECK of Grandview, Ida., died at the Veterans Hospital, Boise, April 15, aged 56 years. He obtained his medical degree from American Medical Missionary College of Chicago in 1902. During the World War he was overseas for two years. On returning, he settled for practice at Grandview which he continued for a number of years until a long period of recent illness.

DR. JAMES A. McLACHLAN of Dayton, Wash., died April 20, from a sudden attack of heart ailment, aged 74 years. He was born in Ontario, Canada, in 1860. He obtained his medical degree from University of Michigan in 1889 and located at Dayton in 1890. For a number of years he was county health officer. He was in active practice until the time of his death.

DIPHTHERIA OF THE PENIS. Maxwell P. Borovsky, Chicago (*Journal A. M. A.*, April 20, 1935) states that only four cases of diphtheria of the penis have been reported in the literature occurring under 1 year of age. He believes that the patient he observed is the youngest one on record, 3 weeks. Information concerning two other authentic cases, one in the new-born period and one at 6 weeks of age, was received by personal communication. Two other cases are recalled by the Chicago health department authorities. In all five cases (three absolutely authentic, two reported from memory by Chicago health department authorities), circumcision was done by the same mohel. The author believes that transmission of the diphtheria infection probably took place during the change of dressings at home.

REPORTS OF SOCIETY MEETINGS

WASHINGTON

CHELAN COUNTY MEDICAL SOCIETY

Pres., E. D. Sawyer; Secty., R. K. Pomeroy

The regular monthly meeting of Chelan County Medical Society was held at Cascadian Hotel, Wenatchee, April 3. The following program was presented: John F. Le Cocq of Seattle discussed "Perthe's Disease and Allied Conditions." Glenn N. Rotton of Seattle delivered an address on "Breech Delivery."

KING COUNTY MEDICAL SOCIETY

Pres., R. L. Zech; Secty., F. H. Douglass

A regular meeting of King County Medical Society was held in the auditorium of Medical Dental Building, Seattle, April 1, with president Zech presiding. Minutes of last regular meeting were read and approved. A motion presented by P. W. Willis, Sr., and seconded by Bryan Newsom that the president confer with Dr. Coffey regarding health insurance was not approved. Dr. Clancy spoke on behalf of the committee on public health. President Zech requested that all members wear lapel badges in an effort to exclude non-members from the meetings.

Edward D. Hoedemaker read a paper on "Psychogenic Cerebral Pain Patterns." The psychogenic factor in producing prolonged pains after injuries was the basis of the paper. A patient of 40 years, injured twenty years previously while playing football had continued pain in spite of operations and various medical treatments. After ten days of psychotherapy he was cured. Another patient of 52 injured his back playing golf six years ago. He was treated with vaccines, physical therapy, fusion of lumbar bodies with no relief. After six weeks treatment he was cured. Although the organic cause of pain has been removed, the stream of painful impulses is still connected with conscious thought. This condition differs from hysteria which is accompanied by loss of function, anesthesia and other symptoms. Treatment consists of constant suggestion of recovery and reconditioning with physical therapy. The paper was discussed by Drs. Hackfield, Flothow and LeCocq.

C. E. Hagyard read a paper on "Pernicious Anemia Following Gastrectomy." The original symptoms and treatment of a patient were described, first seen in 1925. Gastric resection was performed for carcinoma of the stomach. Ten years later symptoms and blood examination indicated pernicious anemia. The relationship of gastrectomies to pernicious anemia was discussed with citations from various writers.

LINCOLN COUNTY MEDICAL SOCIETY

Pres., J. E. Anderson; Secty., C. S. Baumgarner

Lincoln County Medical Society held a meeting at Har- rington, April 8. Nathan L. Thompson, president of the state association, was a guest and spoke on matters pertaining to the organization.

The following officers were reelected for the ensuing year: president, John E. Anderson of Almira; vice-president, G. M. Yount of Wilbur; secretary and treasurer, C. S. Baumgarner of Davenport.

PIERCE COUNTY MEDICAL SOCIETY

Pres., V. E. Crowe; Secty., W. B. Penney

The regular meeting of Pierce County Medical Society was held in the Medical Arts Building, Tacoma, April 9,

with V. E. Crowe, President, in the chair. Minutes of the previous meeting were read and approved.

Applications of Frank C. Willsen and Ryle A. Radke, having been approved by the Trustees, were balloted on and they were unanimously elected as members of the Society.

Dr. Yoder announced that, owing to a misunderstanding as to the date, Dr. Watkins of Portland, who was to have given a paper on "Common Errors in Obstetrics" was unable to be in Tacoma. It was voted to ask Dr. Watkins to speak at a special meeting to be called for April 16.

Dr. Allison gave a short report on his recent trip to eastern orthopedic clinics.

The election of nominating committees resulted in the following committees being elected: Committee No. 1, S. M. MacLean, Chairman, C. R. McCreery and H. G. Willard; Committee No. 2, T. H. Duerfeldt, Chairman, W. H. Goering, E. W. Janes.

WALLA WALLA VALLEY MEDICAL SOCIETY

Pres., H. C. Cowan; Secty., G. R. Gowen

Walla Walla Valley Medical Society held a meeting April 10. N. L. Thompson, president of the state medical association, who was the guest of honor, addressed the society on "Our Affairs."

On the program appeared W. B. Swackhammer, officer in charge of the Veterans' Hospital, who spoke on "Introductory Remarks in Regard of Hospital Activities." C. W. Rudolph discussed "New Growth in Bones," F. C. Robins leading the discussion. W. C. Nalty gave an address on "Teratoma Testis" with discussion led by Dr. Harry C. Cowan. C. J. Johannesson considered "Discussion and Demonstration of X-ray Films."

LEAGUE OF NATIONS INVESTIGATION AND REPORT ON TREATMENT OF EARLY SYPHILIS. The Committee of Experts of the Health Organization of the League of Nations on Syphilis and Cognate Subjects have (*Journal A. M. A.*, April 13, 1935), adopted the following recommendations, which are of great interest to syphilologists, public health officers and private practitioners: 1. Treatment should be recommended as early as possible in the seronegative primary stage. In this connection, the fullest possible use should be made, for purposes of diagnosis, of the microscopic examination of secretion from primary lesions or from lymph nodes. 2. It should be emphasized that, prior to the institution of treatment there should be an adequate physical examination to determine the absence or otherwise of any indication for caution in respect of the dosage. 3. It is essential that, in carrying out the treatment, a strict supervision of the patient be exercised, especially in respect of the mucous membranes, skin, kidneys and liver. 4. Observations, clinical and serologic, after completion of treatment should be adequate and in any case for not less than three years. 5. Adequate examination of the spinal fluid, at least before dismissal from observation, is essential. 6. The principles to be followed in carrying out the actual treatment should be: (a) To employ a comparatively heavy individual dosage of the arsphenamines and of the bismuth or mercurial compounds, the doses being administered in comparatively rapid succession, especially at the commencement. (b) To maintain a persistent attack on the disease, avoiding intervals of such length as to afford the parasite an opportunity of recovering. (c) To administer approximately as much treatment in primary as in secondary cases. 7. The material studied (13,198 case records) does not enable a clear decision to be made as to the relative merits of intermittent treatment, with courses of injections in rapid succession separated by rest intervals of some weeks, and continuance treatment, or between the simultaneous employment of both arsenical and bismuth or mercury and the system in which bismuth and mercury are withheld until a number of arsenical injections have been administered.

STATE DEPARTMENTS

OREGON

MATTERS PERTAINING TO OREGON STATE SOCIETY

Portland, Ore., April 20, 1935.

The April meeting of the Council of the Oregon State Medical Society was held April 3. The question regarding the Pacific Northwest division of the United States Income Tax Department refusing to accept deductions for automobile expense of physicians was discussed, and on the advice of the American Medical Association's legal counsel, it was decided to press the present case to a decision before the Court of Appeals. The outcome will be reported in due time.

It is reported that certain physicians are about to advertise for or otherwise solicit patients from the relief rolls who are under government aid, and it was recommended that such physicians be disqualified from treating relief roll patients. The American Medical Association is investigating county medical services to low income individuals that are now in effect, so that they may make recommendations at the next annual meeting of the society.

Over three hundred members of the society have taken advantage of the liability insurance coverage of the Metropolitan Casualty Insurance Company of New York. This company is an old and sound institution and has been successfully writing this type of insurance in a number of states. Members are signing the applications of this society as fast as their present policies expire. Members may, however, obtain insurance from other companies if they desire. The executive secretary will send you the proper application forms upon your request. Certain insurance companies have indicated that physicians beyond a certain age would be denied liability insurance. The committee disagreed with the companies and they have recalled their contemplated action.

The Council approved the form of bulletin, one issue of which has been gotten out, in conjunction with the Multnomah County Medical Society. It is felt that this bulletin, being more or less militant, will bring to the physicians the realization of the need of concerted action in the handling of the problems which arise, if the medical profession is to continue to give to their patients the high grade of medical services which these patients have always in the past received.

A law which is of great interest to the profession of the state was passed by the legislature and will go into effect June 8. It provides that "Any person practicing any of the healing arts who uses the title 'Doctor' or any contraction thereof in connection with his business or profession, or on any written or printed material, or in connection with any advertising, shall add after his name a designation stating the type of practice. (G) In the case of a person practicing medicine or surgery, the word 'Physician', or the word 'Surgeon', or the words 'Physician and Surgeon'." Physicians will do well to arrange their lettering, cards and stationery in accordance with this law. Violations are punishable by a fine up to one hundred dollars or a jail sentence of not more than thirty days or both. This bill when properly enforced will indicate to patients whether their medical attendant is a physician or a member of one of the under-educated groups. The bill applies also to dentists, veterinarians, optometrists, osteopaths, chiroprodists, chiropractors

and naturopaths, each being required to append the proper designation in every case wherein the word "Doctor" or any contraction thereof is used.

The Council of the society will meet at Klamath Falls, May 13, the day preceding the Ashland meeting of the Southern Oregon Medical Society. All members of the society are welcome to attend the meetings of the Council.

Plans for the September 12, 13 and 14 meeting of the Society, to be held at Gearhart, were discussed. The outlook is for the largest and most enthusiastic meeting that the society has yet held. Dr. T. W. Watts and Mr. Foley, the Executive Secretary, made a trip to Astoria and Gearhart to meet with the Clatsop County Medical Society and arrange for the Annual Meeting. The program committee will meet in Portland, on or about May 1, to plan the program. The members are assured an unusual program.

The Executive Secretary reported the acquisition of a considerable number of new members and it is hoped that by the next annual meeting fully seventy-five per cent of the physicians in Oregon will have affiliated. The secretary of your local society would be glad to have you sign an application blank. ADALBERT G. BETTMAN, *Editor*.

WOMAN'S AUXILIARY

Oregon Auxiliaries are experiencing a great deal of hustle and bustle, preparing for events, many of which will be history when this letter comes out in print. Mrs. E. D. Johnson, president of Klamath-Lake County Auxiliary, writes that their group will hold the Public Relations tea Monday, May 13. It is whispered there will be presented an educational "pageant of posture." Mrs. Gordon MacCracken has called the meeting of the Jackson County group for Tuesday, May 14. This is the date of the annual meeting of the Southern Oregon Medical Society, and calls for a large attendance.

History of medical work and workers of Jackson County will be a matter of record soon. Mrs. MacCracken, with the approval of the Advisors, has prepared and sent out a questionnaire to all physicians and surgeons of whom there is knowledge of having practiced in Jackson County. If they have passed on, an effort will be made to reach some member of the family or such records as are available. This questionnaire is complete statistically, and when compiled will be a most interesting and valuable document. Mrs. MacCracken finds more than one hundred on the list. One letter has gone to India.

The president was a guest at each of the events listed above and also visited the Clatsop-Tillamook County organization April 26 and 27 as guest of the president, Mrs. L. W. Hyde. Plans for the state meeting at "Gearhart by the Sea," September 12-14, were gone over.

Following several years of seriousness, Multnomah County Group with Mrs. A. H. Cantril president, has gone in for more or less of diversion. This doesn't mean the serious study of economics, insurance, etc. is being neglected, but one regular meeting recently was called in the art museum, and an hour's discourse on Japanese prints was given by an authority on the subject. This was much enjoyed. The study group is diligently pursuing their study of the history of medicine in the Northwest. The meeting on April 22 took the form of breakfast at the home of the state president,

to which several guests were invited from Oregon City, the site of the McLoughlin Memorial House. The paper was on the life of Dr. McLoughlin. All thoughts go forward to the great National meeting in Atlantic City in June. Oregon

women will do their part in adding to the success of this annual event.

MRS. JOHN G. ABELE,
*Pres. Woman's Auxiliary to
Oregon State Medical Society*

WASHINGTON

A MESSAGE TO THE WASHINGTON PROFESSION

Everett, Wash., April 24, 1935.

Could I wield the facile pen of Dr. Pepys I could tell a most interesting story of my recent trip to the east side of the State, where I contacted five medical societies during the week of April 8 to 15. Having had an invitation to visit Walla Walla Valley Medical Society on April 10 and Whitman County Society on same date, I planned my trip as follows. Whitman County advanced its regular meeting one week to April 9. Lincoln County, which holds meetings only on call, arranged for a meeting the evening of the 8th and the societies of Klickitat and Skamania counties called a meeting for the 11th. The genial president of Spokane Society, Dave Lewis, called a luncheon meeting of his trustees and others at noon of the 9th, and a noon date with the Longview Medical Service Bureau at its regular weekly luncheon on the 12th completed the itinerary.

One thing which has impressed me on these visits is that the weakest link in our chain of county societies is not necessarily the smallest and that truth applies to all chains. It depends, of course, on the stuff out of which the link is made. Take for instance, Lincoln County which has only nine or ten doctors who live at scattered points twenty to sixty miles apart. Six men greeted me at Dr. Wagner's office in Harrington and after my talk and an earnest discussion of present day medical affairs, they held their annual meeting, elected officers, including their delegate to the State Association, and paid their annual dues. I found that, though they felt they could not meet with any regularity, they were solving their own problems through occasional more or less chance meetings with one another. Their occasional meeting, even though an annual affair, maintains their integrity as a part of the state and national organizations.

A similar condition exists in Klickitat and Skamania counties, though there they hold at least two meetings a year. The interest shown in economics and scientific medical problems proves them a dependable part of our State Association. Whitman County Society holds its regular monthly meetings at St. Ignatius Hospital, making it a combined staff and county medical society meeting, a good idea that might be followed elsewhere in the smaller counties. At Walla Walla I was made to feel like a veritable Dr. Pepys by a luncheon at noon, a golf game in the afternoon, a dinner and meeting at the Veterans' Hospital in the evening and my first and, I trust, my last visit to the state penitentiary.

Car trouble prevented keeping my date at Longview which I regretted for, as you know, their Bureau is working out some of our problems for us and successfully too. I got this from a few minutes' chat with our first vice-president, J. W. Henderson. At the meeting in Spokane we talked a

little more intimately about the immediate problems that confronted us, such as a more thoroughly organized state with a full time executive secretary and a well planned energetic program of education of doctors and lay people that will put medicine on the offensive side of our economic problems. This will enable us to put up a stronger and, therefore, less time-consuming defense at the next legislature. It will enable us to put forward constructive legislation that will again show us the rightful trustworthy leaders in things pertaining to the health of the people of our state.

Since the meeting of the Trustees reported in last month's issue, the Public Relations Committee, pursuant to the resolution of the Trustees, has held one meeting and laid out an energetic program which I trust you will all support. Dr. Clancy, Chairman of the committee, will tell you more about these plans in this issue and succeeding ones.

Do not forget the State Meeting August 12-14. Plans are maturing for a good meeting. We want a well rounded program and to this end ask that you send in your requests for a place on the program at once to Dr. A. P. Duryee, Everett. We also want our scientific display to be up to par.

NATHAN L. THOMPSON,
President, Washington State Medical Association.

PUBLIC RELATIONS COMMITTEE ACTIVE

A discussion of methods of combatting the propaganda of philanthropists, social workers and others in behalf of sickness insurance was the chief business of the meeting of the Public Relations Committee of Washington State Medical Association held in Seattle, April 14, of which Dr. F. J. Clancy, Seattle, is the Chairman. Other members of the Committee are Drs. M. Shelby Jared, A. T. Wanamaker, and J. Tate Mason, of Seattle; Wm. A. Hulbush, Bellingham; Kenneth Partlow, Olympia; J. L. Norris, Longview; L. A. Scheuler, Port Townsend; Steven A. Porter, Oroville; E. B. Nelson, Spokane; O. G. Kesling, Arlington, and Sydney MacLean, Tacoma.

A resolution was passed to request the President of each component county medical society to call a joint meeting of the society with the Woman's Auxiliary, at which meeting representatives of the Committee will present the problems confronting medicine, particularly that of sickness insurance. The Committee resolved also to prepare pamphlets, newspaper articles and other literature, setting forth the facts of sickness insurance as ascertained by surveys of the various plans now in force in European countries. The offer of the Public Health League to place its office and other facilities at the disposal of the Public Relations Committee was accepted. Frequent meetings of the Committee to expedite its program are contemplated.

IDAHO

IDAHO POSTGRADUATE WORK

Twin Falls, Idaho, April 25, 1935.

Doctors of Idaho:

The program for the annual meeting of Idaho State Medical Association is submitted herewith. The excellence and

worthwhileness of the instruction offered speaks for itself. The men composing the faculty are from one of the best medical schools in the United States and, therefore, in the world. They have been carefully chosen for this occasion and are carefully preparing for it. The features of the

physiology lecture at the first hour each morning, laying the foundation for the clinical features following, is drawn to your attention.

The doctors in Boise are already at work on the arrangements for our comfort, convenience and entertainment. The Woman's Auxiliary will meet in a big way, too. It will insure domestic tranquility if you bring your wife. Let us all go into this meeting whole-heartedly and advance the Idaho medical profession to a position it should hold in Idaho. The administration of your State Association is trying to serve you with zeal and vigor. Attend our state meeting without fail; cordially invite any medical friends from out of our borders. I'll be seeing you in Boise, September 9.

CHARLES R. SCOTT,

President, Idaho State Medical Association.

LECTURES AT LAY MEETING

1. Dr. Lathan A. Crandall, Jr. Behind the Scenes of Medical Science.
2. Dr. William R. Cubbins. The Layman's Duty to the Injured.
3. Dr. William H. Holmes. Diet and Disease.
4. Dr. John A. Wolfer. The Nature of Cancer.

SPECIAL LECTURES FOR LADIES

1. Dr. George H. Gardner. Why Menstruation?

PROGRAM

MONDAY, SEPTEMBER 9

FORENOON

- 9:00-10:00—Lathan A. Crandall, Jr.: Physiology of the Heart. The Conduction Mechanism of the Heart. Control of Heart Rate (reflexes by way of vagus and sympathetic). Carotid Sinus. Regulation of Cardiac Output. Electrocardiogram. Physiologic Applications to the Arrhythmias.
- 10:00-11:00—William H. Holmes: The Common Forms of Cardiac Disease. Their Recognition and Treatment.
- 11:00-12:00—John A. Wolfer: The Preoperative Preparation of the Patient.

AFTERNOON

- 2:00-3:00—William R. Cubbins: Fractures of the Femur. Types and Treatment.
- 3:00-4:00—George H. Gardner. The Gynecologic Patient Presents Herself. Taking of Histories. Relation of Pelvic Symptoms to General Condition. Methods of Examination.
- 4:00-5:00—Round Table Discussion.

TUESDAY, SEPTEMBER 10

FORENOON

- 9:00-10:00—Lathan A. Crandall, Jr.: Response of the Body to Wounds and Infection. Fever. The Blood and Reticuloendothelial System. Immunity.
- 10:00-11:00—John A. Wolfer: Wounds Including Burns. Clean and Infected. The Process of Repair. Classification. Treatment.
- 11:00-12:00—William R. Cubbins: Compound Fractures Including Osteomyelitis.

AFTERNOON

- 2:00-3:00—George H. Gardner: Pelvic Infections. Etiology. Diagnosis and Treatment. Prevention.
- 3:00-4:00—William H. Holmes: Pneumonia. Types, Diagnosis and Management.
- 4:00-5:00—Round Table Discussion.

WEDNESDAY, SEPTEMBER 11

FORENOON

- 9:00-10:00—Lathan A. Crandall, Jr.: Recent Advances in Physiology of the Stomach, Small and Large Intestines. Applications to Ulcer, Pylorospasm, Intestinal Obstruction, Spastic Colon, Flatulence and Constipation.
- 10:00-11:00—William H. Holmes: Medical Management of Peptic Ulcer.
- 11:00-12:00—John A. Wolfer: Surgical Management of Peptic Ulcer.

AFTERNOON

- 2:00-3:00—George H. Gardner: Unhealthy Cervix Differential Diagnosis and Treatment.
- 3:00-4:00—William R. Cubbins: Knee Joint.
- 4:00-5:00—Round Table Discussion.

THURSDAY, SEPTEMBER 12

FORENOON

- 9:00-10:00—Lathan A. Crandall, Jr.: Physiology of the Liver. Recent Advances in the Role of the Liver in Metabolism of Carbohydrate, Fat and Protein, and in Regulation of Body Fluids. Emphasis on Liver Function Tests and Significance of Physiology for Treatment of Hepatic Disease.
- 10:00-11:00—John A. Wolfer: Cholecystitis, Acute and Chronic. With and Without Stones. Etiology, Symptoms, Diagnosis and Treatment.
- 11:00-12:00—William H. Holmes: Recognition and Treatment of the Anemias.

AFTERNOON

- 2:00-3:00—George H. Gardner: Uterine Bleeding Significance. Differential Diagnosis and Treatment.
- 3:00-4:00—William R. Cubbins: Fractures of the Leg Including Angle and Foot.
- 4:00-5:00—Round Table Discussion.

FRIDAY, SEPTEMBER 13

FORENOON

- 9:00-10:00—Lathan A. Crandall, Jr.: The Glands of Internal Secretion. Emphasizing Recent Investigations on Hormones of Pituitary, Ovaries, Testicles, Adrenals and Hormones. Regulating Motility and Secretion of Gastrointestinal Tract.
- 10:00-11:00—William H. Holmes: Practical Management of the Diabetic Patient.
- 11:00-12:00—George H. Gardner: Newer Methods of Diagnosis and Treatment. Rubin Test, Schiller Test, Colposcope, Biopsy, Aschheim-Zondek Test, Endocrine Therapy, Office Treatments, Uses of Roentgen-ray and Radium.

AFTERNOON

- 2:00-3:00—William R. Cubbins: Skull Fractures.
- 3:00-4:00—John A. Wolfer: Significance of Postoperative Symptoms. Recognition of Postoperative Complications and Sequelae.
- 4:00-5:00—Round Table Discussion.

BOOK REVIEWS

METHODS OF TREATMENT. By Logan Glendening, M.D. Clinical Professor of Medicine, Medical Department of the University of Kansas, etc. With Chapters on Special Subjects by Different Authors. Fifth Edition. Cloth, 878 pp. \$10.00. The C. V. Mosby Co., St. Louis, 1935.

The author remarks in his preface that in the revision he has followed his own taste entirely; that he has been criticised for not including this or that new form of treatment but in doing so he finds that what he may be persuaded to put into a second edition he must laboriously remove from the third. There is as much shrewdness as truth in this conclusion, since ninety per cent of the new fads and fancies in medicine "lead but to the grave." So

this book is a very definite reflection of the author's views on treatment and both courage and decision are shown in the bold manner in which current therapy is ignored

Thus in the treatment of lobar pneumonia: "There is no specific serum which has been demonstrated to be effective, as of this date." This comment may strike the advocates of Felton's types I and II sera as sheer sacrilege but the reviewer is inclined to the author's opinion. The general care outlined is most sensible, especially the avoidance of frequent overhauling the patient for examination, and, it might be added, tiring him also by inhalation of CO₂ to prevent a possible lung collapse. It has been forcibly impressed on the reviewer that important patients are often killed by overtreatment, whereas the poor, charity victims

in other wards are let alone to recover in peace. While the author stresses rest as being paramount in treatment, it is curious opium is not once mentioned in his list of remedies, the drug of drugs in securing rest. In the use of oxygen no notice is made of the nasal catheter by which sufficient gas may be introduced in most cases where the tent is unobtainable.

The author shows his uncommon sense throughout the book, e. g.: "The reduction of hypertension is not a measure of improvement. The rise of blood pressure is a compensatory process. These people are miserable when their blood pressure is low and the spontaneous onset of low pressure is a sign of impending break up, cardiac failure or thrombosis." The latter is especially true in old people when blood pressure falls suddenly after surgical operations. Immediate transfusion may avert thrombosis. The treatment prescribed in some instances is rather too general, as in the case of coronary thrombosis. "In angina due to coronary thrombosis, morphine is drug of choice. The patient must be rested and nursed for a prolonged period after the attack, long enough for healing of the area of infarction." The time required for repair has been studied in animals and is at least a month or six weeks. Six weeks in bed is about the minimum period required and often many months, following an attack of coronary occlusion.

In the treatment of orthostatic albuminuria, rest, forced feeding and outdoor exercise are advised for the associated enteroptosis, while alkalization of the urine cures the albuminuria, at least for a time. The author has achieved an enviable reputation for his general erudition and literary style in his book reviews and in the popularization of the history of medicine. He is equally successful in presenting the essentials of medical treatment in this volume.

WINSLOW.

BODY MECHANICS. In the Study and Treatment of Disease. By Joel E. Goldthwait, M.D., LL.D. Member of Board of Consultants, Massachusetts General Hospital, etc.; Lloyd T. Brown, M.D., Instructor Orthopedic Surgery, Harvard Medical School; Loring T. Swaim, M.D., Instructor Orthopedic Surgery, Harvard Medical School; John G. Kuhns, M.D., Assistant in Orthopedic Surgery, Harvard Medical School. 281 pp. 99 Illustrations. \$4.00. J. B. Lippincott Co., Philadelphia, London, Montreal, 1934.

This is a compilation of a smaller volume and new contributions. Interest in this subject is increasing and is due almost entirely to the work of the authors in presenting their observations. To quote, "The term 'body mechanics' implies that the human body should be considered as a machine and that as such, like any other mechanical contrivance, it is governed by the laws of mechanical stresses and strains." The authors cite many case histories which in their experience have shown marked improvement and complete relief of symptoms by improving the body mechanics. Some of the claims made may be regarded as fantastic unless a study has been made of the subject or a visit made to the author's clinic. The volume may be read by every surgeon, internist and orthopedic surgeon with a considerable amount of benefit to himself and his patients.

MURRAY.

PRACTICAL NEUROLOGICAL DIAGNOSIS, with Special Reference to Problems of Neurosurgery. By R. Glen Spurling, Assistant Clinical Professor of Surgery, University of Louisville School of Medicine. 233 pp. \$4.00. Charles C. Thomas, Springfield, Ill. and Baltimore, 1935.

This text is primarily for students of neurology and neurosurgery. In the first part an outline of complete neuro-

logic examination is made. The history and general observations are first recorded, then follow the cranial nerves, the cerebrum, the cerebellum, the spinal cord, the reflexes and finally a summary of clinical impressions. The text is well illustrated. All of the modern methods of examination have been carefully outlined. The author has not assumed that the examiner should make any short-cut, but rather that a very painstaking examination be recorded. The different methods of eliciting the various reflexes are outlined and photographs showing the technic are included.

Under part two the cerebrospinal fluid, the anatomy of the ventricles, cisterns of the brain and the arachnoid spaces are carefully outlined and illustrated. The chemistry of the cerebrospinal fluid and finally the methods of examination for various diseases are outlined. A tabulation of the findings of the cerebrospinal fluid in various diseases closes that part.

The third and last part pertains to roentgen examination. Both ventriculography and encephalography are well illustrated by roentgenograms, and the author has apparently given a great deal of thought in outlining the new technic for the use of air in diagnosis, particularly head injuries. In all, the book is well worth having in one's library. It is a small, well-written volume and will no doubt be useful both for students and for those in general practice as well as for neurologists and neurosurgeons. SWIFT.

DIETETICS FOR THE CLINICIAN. By Milton Arlanden Bridges, B.S., M.D., F.A.C.P. Director of Medicine, Department of Correction Hospitals, New York, etc. Foreword by Herman O. Mosenthal, A.B., M.D. Director of Medicine at New York Postgraduate Medical School, Columbia University, New York. Second Edition, Thoroughly Revised. 970 pp. \$10.00. Lea & Febiger, Philadelphia, 1935.

This volume is a compilation of information by the author who has contributed very excellently to the contents and has chosen to assist him in special fields a number of very well qualified men. It is an excellent book for special diet therapy, for it takes up in detail those diseases which lend themselves well to dietetic treatment. The chapter on nephritis is a very constructive contribution. The chapter on diabetes is not extensive, but gives very good tables. There is a practical expression throughout the entire text and it will be found helpful by medical men and nutrition workers who are interested in dietotherapy.

HOFRICHTER.

PHYSIOLOGY IN MODERN MEDICINE. By J. J. R. MacLeod, M.B., LL.D., D.Sc., F.R.C.P., F.R.S., Regius Professor of Physiology in the University of Aberdeen, Scotland, etc. Assisted in the present edition by Philip Bard, Professor of Physiology, Johns Hopkins University School of Medicine; Edward P. Carter, Adjunct Professor of Medicine, Johns Hopkins University; J. M. D. Olmsted, Professor of Physiology, University of California; J. M. Peterson, Lecturer in Experimental Physiology, University of Aberdeen; N. B. Taylor, Professor of Physiology, University of Toronto. Seventh Edition. With 297 Illustrations, Including 7 Plates in Colors. 1154 pp. \$8.50. The C. V. Mosby Company, St. Louis, 1935.

The author states that, notwithstanding the sufficient number of excellent textbooks in physiology available to the medical student, there is none in which particular emphasis is laid upon its application in routine practice of medicine. This work is intended as a supplement rather than a substitute for regular textbooks in physiology. No attempt is made to review the characteristic tests of various chemical ingredients of the body tissues, as this is cared for in the regular books on biochemistry. Different parts deal with basic chemical principles of physiologic processes,

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Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245*



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NAME M.D.

ADDRESS

CITY STATE

blood and lymph, circulation of the blood, respiration, digestion, excretion of urine, metabolism and nutrition, endocrine organs, neuromuscular system, special senses. It would be impossible to mention in detail these various lines of study. Each is discussed at length with a description of experiments such as illustrate the control of circulation with the blood flow in the arteries. The processes of digestion, metabolism and other physiologic processes are considered and explained in the most thorough manner. For either student or physician seeking the principles of human physiology, desired information is available from this volume.

THE COMPLEAT PEDIATRICIAN, Practical, Diagnostic, Therapeutic and Preventive Pediatrics. For the Use of Medical Students, Internes, General Practitioners and Pediatricians. Wilburt C. Davison, M.A., D.Sc., M.D., Professor of Pediatrics, Duke University School of Medicine, etc. \$3.75. Seaman Printery, Duke University Press, Durham, N. C., 1934.

The title serves to catch the eye and the pages which follow hold the interest of the reader of this unique little book. Distinctly of the reference type, the completeness with which is covered the entire field of practical and preventive medicine as applied to pediatrics makes it of real value to anyone who treats children. Its seven chapters deal in turn with symptoms and signs, diseases, differential diagnosis and treatment, preventive measures, administration of fluids and blood to infants, feeding of normal infants, drugs and prescriptions and laboratory methods. About one-half of the book is given over to a detailed account of symptomatology of diseases, their diagnosis and treatment, with many references, forward and back, to other conditions in which the same facts are applicable. Distinctly not a book for light reading, its only fault might be said to lie in the maize of detail through which one wanders in pursuit of an elusive symptom. In its praise it may be stated that with use and familiarity the ultimate running down of any desired information becomes easier and if the rules for using the book are followed carefully, a complete and up-to-date summary of all the facts is obtainable. The author's name and reputation give final authority to the material so cleverly and uniquely compiled, the book well deserving of a place on the doctor's desk, handy for ready reference.

SEELYE.

AIDS TO PSYCHIATRY. By W. S. Dawson, M.A., M.D. (Oxon.), F.R.C.P. (Lond.), D.P.M., Professor of Psychiatry, University of Sydney, etc. Third Edition. 318 pp. \$1.50. William Wood & Company, Baltimore, 1934.

This volume is intended as a guide to the recognition and treatment of mental disturbances by the general practitioner. Its brevity precludes extensive discussions of these conditions. After discussing normal psychology, which the author defines as "the study of behavior of living organisms," psychopathology is considered, followed by causation of mental disturbances. Theories of neuroses, including those of Freud, Jung and Adler, are briefly explained. Neurasthenia and hysteria are briefly discussed and the various forms of mental disturbances are considered in their essential features. A chapter on legal aspects of insanity is of interest.

STAMMERING AND ALLIED DISORDERS. By C. S. Bluemel, M.A., M.D., F.A.C.P., M.R.C.S. (Eng.). 182 pp. \$2.00. The Macmillan Company, New York, 1935.

The cause of stammering has been a subject for speculation for more than two thousand years, many theories having been offered, some of them being decidedly fantastic. The author lays much importance on "the conditioned re-

flex" which originates many individual functions, among them being speech. Inhibition is a physiologic function which impedes the conditioned reflex. Stammering usually has its onset in the early years of childhood, being a partial and intermittent inhibition of speech. This inhibition may be the result of shock or illness. This represents primary which often develops into secondary stammering and becomes an established condition. Treatment consists of an attempt to establish the conditioned reflex of speech by reinforcement of this reflex. The author tells the manner in which this can be accomplished. It is asserted that the application of the principles outlined will enable the instructor to bring his pupils to the point of fluent recitation in the course of a few weeks or months.

MARTINI'S PRINCIPLES AND PRACTICE OF PHYSICAL DIAGNOSIS. Edited by Robert F. Loeb, M.D., Associate Professor of Medicine, College of Physicians and Surgeons, Columbia University. From Authorized Translation by George J. Farber, M.D. 30 Illustrations in the text. 213 pp. \$2.00. J. B. Lippincott Company, Philadelphia, Montreal, London, 1935.

The purpose of this volume is to present concisely the ways and means by which a physician may use his senses for the recognition and evaluation of disease. Beginning with observation of the patient, there are concise discussions of the body, skin, face, neck and extremities with essential suggestions, followed by the principles involved in percussion and auscultation. With similar detail are considered the respiratory tract, circulatory system and abdominal organs. The necessary details for the examination of each section of the body are briefly presented. One wishing the principles of physical diagnosis in concrete form will find them in this volume.

ELEMENTARY HUMAN ANATOMY. Based on Laboratory Studies. By Katharine Sibley, Professor of Physical Education, School of Education, Syracuse University, Syracuse, N. Y. 360 pp. \$4.50. A. S. Barnes & Company, New York, 1935.

The author states that this text is intended as an undergraduate course in human anatomy, as a foundation for students and teachers of physical education. Special emphasis is placed on the study of bones, ligaments, muscles and the nervous system, to aid the teacher of corrective gymnastics and the physical therapist in muscle examination and muscle reeducation. The book contains a profusion of illustrations taken from standard works on anatomy, averaging about two to every three pages. Laboratory studies are described, laying stress on the action of muscles and their interrelations and the movements of joints. The study of this book will afford the undergraduate definite knowledge on the structure of the human body.

IDEAL HEALTH. Or the Laws of Life and Health. By Alexander Bryce, M.D., C.M. (Glas.), D.P.H. (Camb.). Third Edition. 340 pp. \$2.00. William Wood & Company, Baltimore, 1935.

This book is written for the benefit of anyone, layman or physician, interested in the preservation of health. The author wishes to commend it to teachers of personal hygiene as well as the student of medicine. The subjects considered are food, drink, work, rest, air, exercise, cleanliness, clothing, regularity and moderation, influence of mind on body, eugenics. This wide range of topics covers about every subject pertaining to the preservation of body and mental health. The author does not claim to have introduced anything strikingly novel, but has assembled much of interest and value on these subjects which anyone can study with profit.

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RECENT TRENDS IN OBSTETRIC ANALGESIA

A NATIONAL QUESTIONNAIRE *

CHARLES E. HUNT, M.D.

EUGENE, ORE.

The author, having written several papers on the subject of obstetric analgesia during the past ten years, decided to determine the present trend in this field and to ascertain what methods the leading obstetricians of the country are employing at the present time. To this end, a personal letter of inquiry was sent to eighty representative obstetricians. Every state was represented, as well as most of the larger cities and the majority of the leading medical schools. The questions pertained to what method was commonly used, what desirable and undesirable effects were noted, what their experience was with the barbiturates, Gwathmey's technic, the morphine and scopolamine method, and what they considered an ideal analgesic should be. Replies were received from seventy-eight of the eighty men addressed, and in many instances lengthy reports and reprints were received. I wish at this time to acknowledge my appreciation for this splendid response and give due credit to those who have helped so materially in the production of this paper.

I think it is timely and of considerable value to try to summarize, if possible, the many opinions and experiences relative to obstetric analgesia which have accumulated in the last few years. Lundy, of the section on anesthesia of The Mayo Clinic, says

on this subject because it seemed to be such a contro-
in his reply that until now he has avoided writing
versial one. His paper on this subject was presented
before the Pacific Northwest Medical Association
in June. He mentions an editorial in *Surgery, Gyne-
cology and Obstetrics* by Mussy, calling attention
to the price of painless labor and to recent report
by the New York Academy of Medicine on ma-
ternal mortality, in the high rate of which anes-
thesia is a factor. In this Mussy raises the point
that we are overstepping the bounds of safety in
trying to give complete relief from pain in certain
cases, at least by some of the less safe agents and
methods.

It is a striking fact in looking over the literature
of today, that while there was comparatively little
written on obstetric analgesia until the time the
Gwathmey method was brought out, today there is
hardly an issue of a publication on obstetrics
which does not contain discussions on this subject,
and especially on the use of the barbiturates. In
my paper before this Society about six years ago,
which was based on a questionnaire to 200 obstetri-
cians, the main interest was the comparison of the
Gwathmey method and the scopolamine-morphine
method. I reported at that time that 80 per cent
of the representative men interviewed favored the
Gwathmey technic.

Twilight sleep was more or less forced upon the
profession by magazine propaganda when it first
began to be used in this country a good many years
ago. Without experience or knowledge of its dan-
gers, many practitioners began using it in homes

* Read before the sixtieth annual meeting of Oregon
State Medical Society, Corvallis, Ore., Sept. 27-29, 1934.

instead of in well regulated hospitals with untoward results. No doubt many babies were lost because it was brought into vogue before it had been thoroughly worked out and before the medical profession had become familiar with its technic, limitations and dangers.

Later Gwathmey's technic was heralded as a safe analgesic, economical, simple and appropriate for use by the general practitioner in homes as well as in hospitals. Numerous authorities have stated that it was one of the greatest advances in medicine within recent years. However, with the present trend in the use of the different barbiturates, and the continuous seeking for other drugs and combination of drugs, it would seem that the ideal analgesic has not yet been found.

History shows that women have always sought some relief for the suffering of childbirth, and it is only from continuous research and comparison of results that progress can be made. There is not much doubt that the modern woman of today is more and more demanding relief. If this can be given without hazard to the mother or baby, and without affecting the progress of the labor, it will be a great advantage, as fear, shock, fatigue and other undesirable factors will be removed. Doubtless a parturient woman has as much right to be relieved of pain at childbirth as any individual has to be relieved of any other pain. However, no woman after going through nine months of pregnancy would knowingly allow any method of relief to be given her which would cause a loss of her baby. Perhaps we have gone too far with our promises of painless childbirth. We should study our results and above all be honest as to the effect of certain drugs at least on the baby.

There is no single agent which meets all the requirements in every case. There is no drug used which does not carry a penalty, if pushed too far or used injudiciously. Most all students of this subject now agree that there is no one method, but that one must individualize and fit the analgesic to the patient. It will depend upon the type of patient, stage and length of labor, condition of mother and baby, and many other factors. It must be remembered, also, that it is difficult to interpret the results of analgesia in any given case, and there are no two patients who react the same to a given analgesic. Some patients also have idiosyncrasies to given drugs.

One should familiarize himself with all the drugs and methods commonly used, and should become

proficient in the use of the most common ones. It is true that one can obtain good results with one of several methods if thoroughly understood, the patients individualized and the technic perfected. One should never have a routine procedure for all cases. In general, simple methods should be favored. In the past we have relied pretty much upon clinical impressions as to effects and results. There is a new tendency away from empiricism and toward scientific methods with a comparison of data. There is beginning to be a more intensive study of individual drugs and more personal observation of their effects on the patient by the obstetrician.

Many state there is no such thing as painless childbirth and that most all analgesics tend to slow labor and cause a need for more operative procedures. Many claim that, to be effective, an analgesic should be given early in labor and it is here that many of them impede progress. It must be remembered, also, that the use of any analgesic demands much more constant attention to the patient and more time given by the nurse as well as the doctor. Moore's admonition to know your patient physically and emotionally, know the action of the drug you use, know the mechanism of labor and the progress each individual patient is making is sound advice. There is no doubt that the present questionnaire and recent literature show a tendency, not only to seek new drugs with a maximum of relief and a minimum of undesirable effects, but to combine parts of several methods, and a tendency to individualize every patient. Out of all this experience and study will doubtless come more effective relief with less danger to the mother and baby.

As to a definition of an ideal analgesic, it must be said that this should include a great deal, and we do not have any one at present. The great majority of those replying to the questionnaire stated that the first requirement would be safety to the mother and baby with absence of any narcotizing effect on the child. Next in importance they stated it should not slow labor by diminishing the strength or frequency of uterine contractions.

Of the seventy-eight answering the questionnaire, a total of nineteen or 24 per cent were using the scopolamine and morphine method. Eleven of these stated it was their first choice of all analgesics. Five of the nineteen substituted pantapone instead of morphine with the scopolamine. It was the consensus of opinion that morphine and scopolamine found their best use in the first stage, especially if prolonged, and in primiparae.

Many others are using scopolamine combined with Gwathmey or with barbiturates. As to results with this method, fifteen reported it was excellent in the prolonged first stage in primiparae. Eleven had abandoned the technic as unfavorable. Thirteen reported that babies became narcotized, three that it was uncertain or a failure, three that it required careful supervision and was limited in its use. Practically all agreed that the scopolamine and morphine method should be used only in a well equipped hospital with properly trained personnel.

Irving at the Boston Lying-In Hospital recently studied 860 patients, making a very careful comparison of the different analgesics under excellent control, and reported relative to morphine or pantapone and scopolamine, that only 39 per cent of patients enjoyed complete, and 34 per cent partial analgesia, while in 27 per cent there was no relief at all. The degree of excitement was moderate, 10 per cent of the patients requiring control. There seemed also to be an increase in the frequency of postpartum hemorrhage. Only 33 per cent of the babies breathed immediately at birth and required various methods of resuscitation. This contrasted with 1.9 per cent of infants who did not breathe in the out-patient department where no anesthetics were used. In the cases in the hospital, where gas, oxygen and ether were given, 80 per cent of infants breathed as soon as delivered. In primiparae labor was on the average prolonged. There was an operative incidence of 46 per cent, the highest in any method used. He concluded that pantapone and scopolamine proved not to be satisfactory hypnotics and he does not believe that pantapone, morphine or any of its derivatives should be used during labor as they have a marked effect in delaying the initial respirations of the infant.

To summarize, the general opinion of the majority of those questioned regarding the status of scopolamine and morphine was that there are few who now push these drugs to the original full twilight sleep extent as formerly. The general popularity has waned, as there seems to be a fear of the effect of the drugs on the respiratory functions of the infant. There have been altogether too many narcotized infants, due partly to improper use of the drugs. Most of the serious results were due to giving too much morphine and especially too late in labor. It is quite well agreed that morphine should not be given to a multipara when the cervix is completely dilated.

Many have overcome the danger from morphine by combining barbiturates with scopolamine. Mc-

Lane reports from the New York Lying-in Hospital that scopolamine is being combined with Gwathmey technic there. The use for scopolamine and morphine is undoubtedly best found in the long first stage in the primipara or in delayed first stage of the multipara in case of rigid os, etc. It is best followed in the second stage by nitrous oxide and oxygen gas, or ether. The method as stated by one authority is too good to discard and has value if properly used by one skilled in the technic, providing the patients are individualized and well controlled. There are a number of very good obstetricians who report good results under these circumstances.

There were twenty-nine or 37 per cent who preferred the Gwathmey technic as their first choice. Six used the complete Gwathmey technic, six only the rectal ether and oil, eight ether-oil with pentobarbital sodium with no morphine. Three were using barb-eth-oil, a combination of barbiturates with ether and oil. One of these was Harrer of New York who had formerly been a very strong Gwathmey advocate, having observed in large part 23,000 cases that were delivered under the Gwathmey technic at New York Lying-in Hospital. Many were combining parts of the Gwathmey technic with other methods.

As for results, seventeen reported them excellent, six considered it unreliable and not always effective, four reported a prolongation of labor, six reported narcotized babies, four that the method was unsatisfactory. Six had discarded the method. A consensus of opinion was that Gwathmey's technic was best of all methods for home delivery and for the general practitioner. It would seem that this method is not so popular as a few years ago, but not discarded by any means. Many who do not employ the whole technic use ether and oil in combination with other methods, especially with barbiturates.

Irving in his survey showed that from the point of amnesia this method proved to be the least satisfactory, since only 18 per cent of the patients experienced complete, and 67 per cent partial loss of memory. There were 25 per cent of failures. The incidence of excitement, however, was low. The effect on the baby was not so marked as that of pantapone and scopolamine, as 53 per cent breathed immediately at birth. He rejects this method for the same reason that he rejects scopolamine and morphine because of the effect of the morphine in retarding the respiration of the baby.

Gwathmey, in his report based on more than

20,000 cases, states that the advantages of his technic depend upon employing common drugs, with simple technic, without unusual equipment or trained personnel, and that it can be used either in the home, hospital or by any physician. He states the fundamental factor is analgesia and not amnesia, although this is present in a high percentage of cases.

Harrar of New York, who has been a great Gwathmey advocate, is now combining barbiturates with ether-oil without the use of morphine or hypodermics. He claims this can be used much earlier in labor and its analgesic effects are much more prolonged. The ill effects of morphine and scopolamine are avoided. This preparation of barb-eth-oil contains five grains of neonal and eight grains of ethyl-barbituric acid, with twenty grains of quinine, two and one-half ounces of ether, and one and a half ounces of mineral oil.

McCormick of Indianapolis has perfected an apparatus for giving the instillation which very much simplifies and perfects this technic. It eliminates the need of assistants, there is no mussiness, and the instillation is completed in thirty or forty seconds.

Axelrod of Cleveland modifies Gwathmey technic by adding one gram of barbiturate to two and one-half ounces of ether, twenty grains of quinine, one and a half ounces of oil. With the barbituric preparation the rectal instillation was given early in the first stage of labor. The average duration of analgesia with the plain quin-ether-oil was about three hours, whereas with the barbiturate added light anesthesia from ten to fifteen hours duration was available. Very little supplemental anesthesia was required. He states he has tried administration of barbiturates orally, intramuscularly and intravenously, but no method has given the uniform satisfactory results as the use of proper barbiturate dissolved in ether with quinine.

To sum up the opinion on the Gwathmey technic, it can be said that, first of all, the method is generally considered safe if it is carefully followed. It is simple, inexpensive, and can be used by any practitioner in the home. It gives about 80 per cent analgesia but is not so effective for amnesia. For proper technic Davis¹ gives a very splendid resume. There are few contraindications and the cases in which labor is retarded are not numerous, if the time of administering is properly judged. No serious effects from the morphine should be had, if

it is not administered late in labor. Greater amnesia can be obtained by combining scopolamine with the morphine or barbiturate. There is less excitement and lack of control of the patient with this method than either twilight sleep or the barbiturates.

My personal observation after eight years of use is that labor is at times prolonged, if one misjudges the time of administration; vomiting is slightly increased; and there is a small percentage of infants who are slightly anesthetized at birth, not, however, to a serious degree. A small percentage of patients become irritable and this is practically eliminated by the addition of the barbiturates. I think the substitution of morphine by the barbiturates, such as Harrar, Axelrod, Irving and others are using, will prove to be a great advantage.

Sixty-two of the seventy-eight answering the questionnaire, or 86 per cent, are using barbiturates of one kind or another in various combinations. Sixteen preferred pentobarbital sodium. Twelve combined barbiturates with Gwathmey method. Four combined it with scopolamine and morphine. Eleven preferred sodium amytal. Four preferred sodium amytal with scopolamine. Six preferred pentobarbital sodium with scopolamine. Three, including Harrar of New York, were using barb-eth-oil. Of these preferring pentobarbital sodium, Curtis of Chicago, Lundy of Rochester and Irving of Boston are listed. The chief objection on the part of the majority using the barbiturates was undue excitement, restlessness, and in some cases unmanageableness of the patient.

As to results, twenty-one reported unqualified excellent results, six excitement or delirium, three difficulty in controlling the patient, three disorientation and the need of careful supervision; three reported the drugs valuable in the first stage, five as not reliable. Fifteen of the seventy-five reporting stated they combined parts of several methods and individualized their patients. Thirty-one used nitrous oxide and oxygen, gas during the second stage, and many combined ether with it for delivery or repair.

The tendency is undeniably away from the use of morphine and in the direction of barbiturates. The trend is also to combine more than one drug and to individualize each case. There seems to be a movement decidedly away from complete Gwathmey technic as well as from complete twilight sleep. There is a tendency also to attempt to obtain more amnesia by combining scopolamine with several of the other methods. The tendency is to administer ether and oil in the prolonged labor and where the

1. Davis, A. B.: *Amelioration of Labor Pains by Morphine-Magnesium Sulphate Injections and Colonic Ether Instillation*. Surg., Gynec. & Obst., 40:868-874, June, 1925.

patient is unduly excitable under barbiturates. Many are trying to avoid the use of morphine and all are trying to avoid the restlessness and delirium of the mother, and narcosis of the baby.

Many barbiturates are being studied with the idea of finding an ideal one. Pentobarbital sodium so far seems to be most satisfactory. There is a pronounced tendency to fit the drug to the patient and to understand and use more than one method. The good that is found in twilight sleep and in the Gwathmey technic is being retained, while markedly increasing the use of barbiturates and seeking to find better drugs. A general impression of the barbiturates is that they can be given much earlier in labor than morphine, without danger of slowing the contractions, and that they can be combined with any of the other analgesics or anesthetics; also that they do not interfere with respiration of the newborn infant or with uterine contractions. On the contrary, it is not uncommon to observe rather sudden cervical dilatations after a dose of this drug.

Randall of The Mayo Clinic states they have increased the average dose of pentobarbital sodium to six and seven and a half grains. He emphasized the fact that analgesia should be begun as soon as labor is definitely under way and the patient complains of some discomfort. He says the successful use of pentobarbital sodium depends in large part on keeping the analgesia a little bit ahead of the patient's requirements. If analgesia is started too late or the initial dose insufficient, it is frequently found that one does not catch up with the patient and does not have a satisfactory analgesia.

Lynch states that pentobarbital sodium together with scopolamine is the only barbiturate which he now values. Curtis of Chicago believes pentobarbital sodium to be the most satisfactory among recently developed sedatives. He believes it is more powerful than sodium amytal and wears off within a few hours instead of persisting as this does. In the uncontrollably restless patients he recommends rectal ether-oil.

Hearst is now using pentobarbital sodium in combination with scopolamine and if necessary, in addition, rectal ether and oil if the first mentioned drug causes excitement. He has not seen any disadvantages from this form of analgesia. He much prefers pentobarbital sodium to morphine. Bad effects have been found when barbiturates, especially sodium amytal, were given intravenously. The Council on Pharmacy of American Medical Association does not consider there is any advantage in

their intravenous use over the oral or rectal, and considers it unjustifiable so to use them.

McCormick made a comparison between sodium amytal and pentobarbital sodium in a series of cases and concluded that the latter acts quicker, affords deeper analgesia, a less protracted hypnosis, and is much less productive of delirium. It exerts a therapeutic effect in about half the dosage of sodium amytal.

Lundy states that one-half the dose of pentobarbital sodium will give the same therapeutic effect as sodium amytal, and the recovery period is only about half as long. Overdosage with the one is as likely to produce respiratory complications as the other. Lundy was the first to use this drug clinically. His experience includes oral, rectal and intravenous use, and extends to many thousands of cases.

As previously mentioned, Irving of Boston Lying-in Hospital studied 860 patients using eight types of analgesia in groups of 100 each. Accurate comparisons were made by trained observers and the drugs compared were pantapone and scopolamine, pantapone and rectal ether, pernocton, sodium amytal and scopolamine, pentobarbital with scopolamine, sodium amytal and rectal ether, pentobarbital and rectal ether, and pentobarbital and paraldehyde. It seems to me this is the most scientific work which has been reported at any time, as actual comparisons under like circumstances were carefully made by the same workers.

He showed that pentobarbital sodium and scopolamine were the most effective of any of the methods studied and it is now the standard method used at Boston Lying-in Hospital. By its use he obtained 86 per cent absolute loss of memory of labor, 14 per cent incomplete amnesia and no failures. Its sole objection was fairly high percentage of restlessness which he controls by supplementary instillation of rectal ether.

The initial dose of pentobarbital sodium was from four and a half to six grains by mouth which may be increased if desired and is repeated according to the usual indications. He obtained the best amnesia when scopolamine was combined with the barbiturates. All methods used delayed the initial respirations of the infants to some extent but this was not a valid objection to their use.

To sum up the opinions relative to the barbiturates, it can be said that the tendency is away from intravenous use and in favor of oral or rectal administration. Pentobarbital sodium is much to be preferred to sodium amytal. The barbiturates can be given earlier in labor than any other drug and

can be combined with any other analgesic. Their use is being greatly increased and they are replacing morphine to a large extent. Their effects on the mother and baby are not serious and they hasten dilatation and relaxation. The average labor is shortened and the babies are not narcotized as when morphine is used. The chief objection to their use is restlessness and unmanageableness on the part of the mother and new preparations are being sought which will overcome this. The addition of ether-oil also very materially eliminates this objection. When this is done, their use will be almost ideal.

In answer to the question what undesirable effects were noted from the use of various analgesics, the replies were as follows: Twenty-five reported apnea or narcosis in the babies, or babies difficult to revive; seventeen reported excitement or delirium (these latter were mostly from use of barbiturates or twilight sleep). Fifteen reported prolonged labor, eight the necessity of constant personal observation and watching, five patients to be disoriented and irrational, five uncertain results, three that operative procedures were more necessary.

CONCLUSIONS

Based on the statements of seventy-eight of the leading obstetricians of the country, the following trends in obstetric analgesia are noted:

1. There is a great increase in scientific interest in this subject on the part of the profession.
2. Numerous drugs in various combinations are being used in an attempt to meet the requirements under various conditions.
3. The ideal obstetric analgesia has not yet been perfected.
4. No routine method can be used in all cases, and there is no method which does not possess dangers for the mother and child unless handled with great care and intelligence.
5. The best results are obtained by being familiar with more than one method and individualizing the patient. Only large experience with various drugs will fit the obstetrician to skillfully administer them.
6. The use of any method entails a greater expenditure of time and greater responsibility on the part of the obstetrician.
7. There is a distinct tendency away from a complete twilight sleep as well as a complete Gwathmey technic. Twilight sleep should be confined to use in well equipped hospitals by those skilled in its use. The Gwathmey method is adaptable for use in homes by practitioners.
8. There seems to be an increase in the use of sco-

polamine combined with various methods to increase amnesia.

9. Parts of various methods are being combined.

10. There is a great increase in the use of various barbiturates and a decrease in the use of morphine and its derivatives. Barbiturates can be given earlier in labor than any other drug with less effect on the baby.

11. The most widely used and most satisfactory barbiturate in obstetrics is pentobarbital sodium. Its combination with rectal ether-oil after the method of Irving and others enhances its action and counteracts its tendency to cause excitability.

12. Rectal ether-oil is being used extensively in combination with the barbiturates and other drugs.

13. Serious attempts are being made to find a drug which will combine the favorable features of the barbiturates and yet be free from their tendency to cause excitement.

716 Miner Building.

WHEN IS FOOD TOXIC *

C. ULYSSES MOORE, M.D.

PORTLAND, ORE.

The purpose of this study is to present a review of certain effects of foods without attempting to advance anything particularly new. It has been said that food is the most frequent cause of illness as well as the best remedy in our armamentarium. The homely proverb that a man "digs his grave with his knife and fork" is not without some basis in fact. Yet, how often we physicians give it only a minimum of consideration in the prevention or cure of disease.

The past half-century has seen great improvement in morbidity and mortality rates among infants and children. But equal progress has not been made with individuals under one month of age or those over forty years. René of Belgium, after gathering worldwide data, has presented a striking statistical summary. He states that ten conceptions produce eight living infants. At twenty years of age, six of these are alive, of whom two are crippled by disease or accident so that they depend on the four well ones for support. At forty years of age, five are alive, of whom only two are able-bodied, and upon these two falls the support of the other three.

Two problems confront us from such a study, how to lower morbidity and mortality, and how to

* From the Nutritional Research Laboratory, University of Oregon Medical School.

* Read before a Meeting of Walla Walla Valley Medical and Dental Societies, Walla Walla, Wash., Feb. 8, 1934.

induce the healthy to conserve their health. A comparison of the brain size in man with that of the lower animals shows, according to the studies of Rubner, that man has a cephalization factor which should enable him to live to a mean of one hundred years. What part has food in our failure to do so? Sherman's¹ study led him to believe that we could live an average of ten years longer, if we made use of our knowledge of foods. McCollum² declares, "the chief factor of disease lies in the unwise choice of foods."

CHEMICAL EFFECTS OF FOODS

First, let us consider foods as to their chemical effect upon the race in general. Food poisoning may be acute and severe or chronic and mild, with perhaps a dramatic death-dealing climax. Osler reminded us of the frequency with which business executives in the prime of life are attacked and conquered by pneumonia following an after-theater supper. The supper in itself is probably only the last straw to the erroneous eating habits of a lifetime. We have made marked progress in diets since Osler's time, a fact attested by the construction of the new diners on our transcontinental trains. Dining-car chefs, whose larder space was adequate when their patrons ate porterhouse steaks and lobster a la Newberg, find themselves cramped in this age of vegetables, fruits and milk. You recall that the American Medical Association exhibit at the Century of Progress Exposition showed that in forty years the average height of women in the United States has increased three inches. This change can be attributed almost wholly to more scientific feeding and care during the period of growth.

The discovery and popularization of vitamins and their effects upon growth and longevity have had a strategic and striking influence upon this increase in height as well as the decrease in morbidity and mortality. Yet vitamins have so become the butt of ridicule that advertising a preparation as a vitamin-food is almost enough to kill its sale. On the other hand, we take it too much for granted that every food preparation contains vitamins. We know that vitamins are necessary from the moment of conception till death. We know certain diseases that they prevent or cure. We know that foods as prepared for our tables have lost approximately half of their original vitamin content and that consequently spe-

cial precautions must be taken to add the B, C and D groups daily.

Irradiated milk is rapidly becoming the most common means of increasing the vitamin D intake. Recently vitamin D in the form of viosterol has been shown to increase the iodine excretion of the thyroid gland some 25 per cent. We have often hypothesized the belief that vitamins activated or stimulated the endocrine glands but this new work gives the first definite proof.

Work at the University of Oregon Medical School^{3, 4} has shown that so-called idiopathic hemorrhages of the newborn, including intracranial hemorrhages and melena, can be produced at will by the limitation of the B vitamins in the diet previous to and during gestation. On this basis many physicians now prescribe 1,000 yeast tablets (Mead's or Northwestern) to be taken during pregnancy, at the rate of 6 to 12 daily.

Carlson's laboratory at the University of Chicago (personal communication) and Manville at our own school⁵ have recently shown that lack of the fat-soluble vitamins produces ulcers of the stomach. Also that, though there may be an abundance of cream, butter or cod liver oil in the diet, their good effects can be annulled by mineral oil, petroagar compounds, or other mineral-oil-containing laxatives which absorb certain vitamins and thereby permit development of the ulcers. We have had cases of colic in breast-fed babies strikingly cured simply by removal of mineral oil from the mother's menu. To that extent mineral oil and its compounds may be considered toxic to the body.

Recently a renewed interest has been aroused in the maintenance of an equilibrium between acids and alkalies of the body. We may well recall that normal blood has a hydrogen ion concentration of 7.35 and that a change of .4 in either direction is incompatible with life. When acid-forming foods, such as cereals and meats, predominate in the diet, the body is fighting acid day and night with the heaviest strain thrown upon the lungs and kidneys. These organs of excretion endeavor at all times to take care of any excess acid in order to preserve the proper equilibrium in the blood stream. Is it, therefore, any wonder that pneumonia attacks the heavy eaters and that nephritis has doubled in frequency since 1920? A urine acidity one thousand

1. Sherman, H. C.: *Chemistry of Food and Nutrition*. Fourth Edition. The Macmillan Co., New York, 1932.

2. McCollum, E. V. and Simmonds, N.: *The Newer Knowledge of Nutrition*. Fourth Edition. The Macmillan Co., New York, 1929.

3. Moore, C. U., Brodie, J. L. and Hope, R. B.: Some Effects Upon the Young of Inadequate Maternal Diets. *Am. J. Physiol.*, 82:350-357, Oct., 1927.

4. Moore, C. U. and Plymate, H. B.: Studies in B Vitamins; Further Consideration of Pyloric Obstruction in Rats. *Am. J. Physiol.*, 102:605-613, Dec., 1932.

5. Manville, I. A.: The Production of Gastric Ulcers by Dietary Means. *Am. J. Physiol.*, 105:70, July, 1933.

times that of the blood may not produce a burning sensation at the external meatus and hence remain unsuspected by the patient, but a urinary hydrogen ion test, which any physician can perform, gives accurate information as to the acid state of the body. If the organism is fighting acid, a diet analysis is indicated and a balancing of the acid foods with the alkaline ones.

FOOD CHART

ACID	NEUTRAL	BASIC
Cereals, Bread, Crackers	Vegetable Oils	Vegetables, Potatoes
Meats, Fish, Chicken	Butter	Milk, Cheese, Junket
Eggs	Sugar	Most Fruits
Coffee	Tapioca	Most Nuts
Tea	Lard	

Since all tissue effort, brain or brawn, produces acid, we need to consume a preponderance of the basic foods, cheese, milk, vegetables and fruits, not only in order to balance our acid foods but also to counteract the acids resulting from metabolic processes. An occasional pH test on a twenty-four hour urine specimen will demonstrate whether the chemical requirements of the body are being met properly.

Minerals are another food element receiving intensive study throughout the world. Knowledge of their detoxifying and tissue building effects is increasing. The minerals needed in largest quantities by the body are, of course, calcium and phosphorus. Many experiments have been conducted on diets high or low in these elements and optimum amounts have been fairly well established. These amounts depend upon what is today considered optimal proportions of other elements, including vitamins. Our knowledge of other minerals is progressing day by day, e.g., a diet deficient in manganese⁶ will cause an atrophy of the testicles; one with an excess of cobalt will so stimulate the production of red blood corpuscles that the ears become fiery red, as in polycythemia vera.⁷

One of the striking mineral discoveries of recent years is that sodium will drive calcium out of the blood stream. We are beginning to think that the Indians were right when they said: "white man lose teeth 'cause him salt meat. Indian smoke it." Modern refrigeration, a ketogenic type of diet, combined with an educational campaign to decrease the

consumption of sodium chloride may reduce the need for dental work.^{8,9}

Another element often deficient in our diets is protein. We may all agree that the amount of protein needed daily per kilo of body weight is 1 gram, but we may grow careless as to the source of that protein. Though one weigh his food and compute accurately the grams of fat, protein and carbohydrate, he may fail to recognize the chemical superiority of the proteins in milk, eggs and meat. Two slices of bread or one egg give each 6 grams of protein, but what a difference in those proteins! The egg contains the amino-acids cystine, tyrosine and tryptaphane, absolutely necessary to life, yet entirely absent from the cereal grains. According to Fishbein¹⁰ the increasing fatigue and muscle weakness which culminates in myasthenia gravis can be improved by a high protein diet containing the amino-acid glycine. What might be called physiologic fatigue is, in our experience, more frequent among those who do not consume adequate animal protein. Many a mother tries to nurse her infant on such an inadequate noonday meal as tea and toast. Do we not need to remind our patients that a meal without eggs, meat or cheese, even though it contains a glass of milk, is inadequate?

A dietitian connected with one of our public clinics in Portland, Celia Bernards, author of a very practical book,¹¹ has found that the diets consumed in private homes are more deficient in proper proteins than in any other element. Because animal foods, some of which are acid-forming, furnish our only complete or "essential" proteins, the question of a properly balanced diet becomes at times a complicated one.

INDIVIDUAL FOOD SENSITIVITY

The second phase of food poisoning for our consideration refers solely to effects on individuals in contrast to the race in general. Individual sensitivity to certain foods is common and may be either inherited or acquired. This chronic mild form of toxicity appears in some families or in members of those families under special conditions, probably in accordance with Mendel's law. Each person reacts to food or other external stimuli in one of three ways: normally, subnormally or abnormally. Von Pirquet supplied three Greek words to indicate

8. Boyd, J. D., Drain, C. L. and Nelson, M. V.: Dietary Control of Dental Caries. *Am. J. Dis. Child.*, 38:721-725, Oct., 1929.

9. Hollander, F.: Coordinated Report of the Columbia University Dental Caries Research Group. *J. Dent. Research*, 14:303-313, Aug., 1934.

10. Fishbein, M.: Syndicated Article of February 6, 1934.

11. Bernards, C. and Hadwen, S.: *Good Foods for Better Health*. Sweeney, Straud and Dimm, Portland, 1934.

6. Orent, E. R. and McCollum, E. V.: Effects of Deprivation of Manganese in Rat. *J. Biol. Chem.*, 92:651-678, Aug., 1931.

7. Orten, J. M., Underhill, F. A., Mugrage, E. R. and Lewis, R. C.: Production of Experimental Polycythemia with Cobalt. *Proc. Soc. Exper. Biol. & Med.*, 29:174-176, Nov., 1931.

these reactions: normergy—reaction of the common, ordinary or normal kind; anergy—subnormal reactivity; and allergy—abnormal reactivity or hypersensitivity.

Most of us belong in the normergic group and react in a normal way to foods. Anergic individuals are the type who can eat any and every food, fresh or slightly spoiled, and feel no ill effects. When exposed to contagious diseases they escape unscathed. Whether they belong to a superior or an inferior group mentally has not, as far as I know, been studied.

The allergic group is much larger than is generally appreciated. A review of 300 consecutive histories in our office showed allergy in 20 per cent. It is generally stated that 15 per cent of the population of the United States are allergic. Allergy is belatedly receiving intensive study. Its major manifestations, such as asthma, hayfever, eczema, hives, migraine, indigestion, are so striking that they require no physician to make the diagnosis. Its minor forms, on the other hand, may be easily overlooked by the keenest physician unless he keeps them constantly in mind, e.g., repeated colds, vasomotor rhinitis, rough, red scrotal tongue, heartburn, excessive gas, morning headaches which disappear after a cup of coffee, lassitude or laziness in mid-afternoon often attributed to an overhearted luncheon instead of to certain elements in that luncheon, chronic fatigue in persons without definite disease entities, lack of "pep" and a testy or irritable disposition. In children allergy may manifest itself as a roughness of the skin of the lateral surfaces of the arms and legs, disturbed sleep, anorexia, poor grades in school, inattention, disobedience and even incorrigibility.

Illustrative of incorrigibility due to food is the case of a boy four years of age, brought to our clinic with the complaint that he was unmanageable in the home. At times he seemed to have no control over his animal impulses to strike at others with a stick, hammer, knife or anything he happened to have in his hand. His diet was erratic, because he stubbornly refused any food except what he liked. He was particularly fond of celery and would steal a bunch of it from the icebox and eat it all. A careful examination of this boy revealed no organic disease. Blood, urine and other tests were normal. Allergy scratch tests revealed a polysensitivity to foods. Celery was one of these. When the food tests and the appetite disagree repeated clinical trials are necessary to determine which is correct. In this case the tests proved the more accurate.

Celery and certain other foods made this boy a demon. When these were kept from him, his actions conformed to a normal pattern. Berman's book on "Food and Character"¹² is an interesting discussion of the interrelation of these two factors.

We find adults who have been life-long sufferers from allergic reactions to foods. One such, a physician friend of ours, had for years been the victim of gastric ulcers, mucous colitis and migraine, and in consequence the object of much medical and surgical treatment, all to no avail. He had suffered so many acute digestive upsets following meals away from home that he had come to refuse all invitations to dine out. At home he lived largely on rice and milk which seemed not to disagree with him. Food tests, three years ago, enabled him so to enlarge his menu that he is no longer a melancholic recluse from society. Probably no other physician in our city so appreciates being able to attend the medical society's annual banquets.

So many persons at middle-age become more sensitive to foods than formerly, that I believe it advisable for everyone to have allergy food tests and a careful metabolic study made between forty and fifty years of age. Physiologists tell us that at twelve years of age 50 calories of energy are radiated per hour per square meter of body surface. This decreases to 40 calories per hour at seventeen years of age, and to 35 at thirty-eight years. It then drops slowly to 28 calories at sixty years of age. Therefore, as one becomes older his diet and his life need to be carefully regulated. It is said that Rockefeller, at about fifty, offered a million dollars for a new stomach. More or less accidentally he stumbled onto a diet which not only corrected his digestive difficulties, but has also brought creditable longevity. Chittendon of Yale, that famous student of nutrition, found it necessary in his forties to change his diet decidedly and with remarkable benefit.

SUMMARY

Beginning with proper feeding during pregnancy and infancy, and ending with old age, we can no longer fail to recognize the rôle of nutrition in the attainment of healthful longevity. Food deserves our serious consideration from two standpoints: first, the chemical requirements of the system in general, and, second, the allergic suitability of the diet to the individual.

CONCLUSIONS

1. Adequate minerals, such as calcium, phosphorus, iodine and iron, together with the vita-

¹². Berman, L.: *Food and Character*, p. 241. Houghton Mifflin Co., Boston, 1932.

mins, are necessary for the proper functioning of the various organs and the endocrine glands. Experiments on animals have shown that mineral oil removes the fat-soluble vitamins and thereby causes stomach ulcers.

2. As food loses portions of its vitamin content in the many processes of preparation, some additional B, C and D should be added regularly. Irradiated milk is the ideal method of increasing our daily consumption of vitamin D.

3. Milk, cheese, potatoes, nuts, fruits and vegetables help to counteract the acids being formed continually in the organism.

4. A pH determination on a twenty-four hour urine proves whether or not one's diet is balanced as to the acid-base food stuffs consumed.

5. Probably the most common error in our menus is the inadequate consumption of the complete proteins found in meat, milk and eggs.

6. Whenever major or minor signs of allergy appear, a thorough course of protein skin-tests and careful metabolic studies should be made.

7. After forty, one's diet often demands readjustment. Foods which previously appeared to agree perfectly may now gradually become imperceptibly toxic.

GASTROINTESTINAL ALLERGY
POINTS TO CONSIDER IN ITS DIAGNOSIS *

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The subject of allergy, which a few years ago was vague and confusing to many physicians, has now become well established. Asthma, hay fever and a few of the allied conditions are now understood to be hypersensitive reactions. The fact that the same hypersensitive reaction may take place in the gastrointestinal tract, causing the development of varied symptoms, is not so widely accepted.

The surgeon has long suspected the existence of gastrointestinal allergy. Osler¹ recognized the various visceral symptoms that occur during urticaria, angioneurotic edema and purpura, and explained them on an anaphylactic basis. Most allergists have observed the severe cramps, nausea and vomiting following an overdose of pollen during the treatment of hay fever. Often our attention has been called to the fact that many allergic individuals have some sort of gastric distress secondary to their principal allergy. In the past 250 cases that I have

studied** 112, or 44.8 per cent, gave a definite gastric history[†] which was secondary to their chief complaint. The majority of these gastric symptoms disappeared with the correction of the principal atopy. It is unlikely that all of these cases had truly hypersensitive bowels but in all probability the majority were atopic.

From the evidence we now have, gastrointestinal allergy has always existed and we no doubt have missed the diagnosis many times. The primary recognized allergy may have been so apparent as to overshadow the visceral symptoms, or on the other hand, the skin lesions may have been so trivial that they were overlooked and thus the key to the diagnosis of some pronounced abdominal condition missed.

Many have taken a negative attitude toward these conditions which are in reality of great importance. Those who wish to practice real scientific medicine should keep the possibility of allergy ever before them, especially when considering gastrointestinal symptoms of an irregular nature.

It would be impossible in this paper to detail the nature of allergic reactions, but it is well to know enough about the response to explain the symptomatology of the gastrointestinal tract. Edema and smooth muscle spasm constitute the principal physiologic response brought about by these hypersensitive reactions. We can observe these reactions in the case of asthma by the aid of the bronchoscope.² Edema of the nose is very evident in hay fever and vasomotor rhinitis, and edema of the skin in urticaria. Since we can observe these reactions in the established allergic diseases, we may reasonably conclude that similar reactions occur in the gastrointestinal tract. The nature of the allergic response is essentially the same, regardless of where it occurs. These reactions appear more frequently in mucous membrane surfaces and, since the gastrointestinal tract contains the greatest amount of mucous membrane, we should find more allergic reactions there.

Animal experimentation has been lacking simply because we cannot elicit subjective symptoms which are important features of these hypersensitive

**Diagnosis	Total	With G.I. symptoms	Without G.I. symptoms	% with symptoms
Asthma	88	42	46	47.7
Hay fever	41	6	35	14.6
Atopic dermatosis	66	29	37	43.9
Vasomotor rhinitis	35	19	16	54.3
Migraine	15	15	0	100
All others	5	1	4	20
Totals	250	112	138	44.8

* Read before a Meeting of Multnomah County Medical Society, Portland, Ore., April 17, 1935.
1. Osler, W.: The Visceral Lesions of Purpura and Allied Conditions. Brit. M. J., 1:517-525, Mar. 7, 1914.

2. Clerf, L. H.: Bronchoscopy as an Aid in Diagnosis and Treatment of Bronchial Asthma. J. A. M. A., 89: 872-875, Sept. 10, 1927.

states. Echer and Biskind,³ in observing the exposed bowel during anaphylactic shock in a rabbit, noted irregular spasms and incomplete peristaltic rushes in the small bowel.

There have been several important observations made by roentgen study upon individuals who were known to have allergic gastrointestinal tracts. Eyer-mann⁴ noted that, when such an individual was deliberately fed a food to which he was allergically sensitive, there was disharmonic tonus in the intestine, and that when this specific food was removed from his diet the bowel was free of any disturbance. Rowe,⁵ upon roentgen study of several cases, found that gastric retention of a marked degree appeared at the end of three hours, gradually increased and was very definite at the end of six hours, that barium was present in the duodenum and jejunum for about the same length of time, and that a definite hypermotility of the small bowel and spasticity of the colon were manifest. Other men have carried out similar procedures and arrived at essentially the same conclusions.

There have been some interesting theories concerning pain production in a typically allergic bowel. Crispin⁶ states that, first, the pain may be caused by exudation of serum and distention of the visceral coats; second, pain may be caused by pseudoobstruction in the intestine; third, it may be the result of marked contractions of peristaltic action; fourth, the pain may be the result of distention. Lennander⁷ explains the pain as the result of infiltration of the wall of the stomach or bowel by serous or hemorrhagic fluid to such an extent as to stretch the parietal mesenteric attachment.

Because the pathology is lacking in these cases, an explanation of pain, as well as of many other symptoms, is difficult. Such hypersensitive reactions are only transitory, never permanent. There has never been a reported case known to have died of gastrointestinal allergy. About the only definite finding which is at all constant is the eosinophilic infiltration present not only in the bowel but in all the shock organs—lung, nose, skin, etc., when they are affected. Occasionally at operation one will find the bowel in active state of allergy. Frequently this

occurs in those cases which were operated upon for some definite pathologic condition which was in reality an allergic bowel. Harrington⁸ reported such a case in 1905, in which he found an urticarial swelling of the gastrointestinal wall during an attack of colic. Others have seen smooth muscle spasms, hemorrhages into the bowel wall and edema of the intestinal mucous membrane.

The causes of these allergic reactions of the bowel are those which produce allergic reactions elsewhere. But of all the possible etiologic factors foods are most prominent, probably because they come in direct contact with the mucous membrane. If the offending proteins are those that exist in the food when eaten, the symptoms will be upper gastric and will appear soon after ingestion. More frequently the offending proteins are split proteins resulting from digestion of specific food. In these cases the symptoms are lower abdominal and do not appear for a day or two.

Allergy is liable to manifest itself in individuals at any age, although there is less tendency toward sensitization with increasing age. One important thing to remember, however, is that an individual may suddenly show evidence of gastrointestinal allergy, even though his age may not indicate it. Simply because a person has eaten a certain food all of his life is no reason to suppose that he may not become suddenly sensitive to that food. As a matter of fact a long period of exposure is usually necessary for hypersensitivity to develop. For this reason wheat, milk and egg seem to be the greatest offenders, and all common foods are oftener allergy producers than the unusual foods that are infrequently consumed. If a patient is sensitive to a food that appears in his daily diet, it is hard for him to realize that such a food could cause his distress, but if he is sensitive to a food that he rarely eats, he usually can detect the source of trouble in a short time.

The symptoms of gastrointestinal allergy are most irregular. They are difficult to tabulate, for no two cases are alike. They may imitate any specific gastrointestinal condition in part but never completely. The patient has a decided ill feeling preceding and during the attack, loses his appetite and usually has symptoms of dyspepsia. In some cases the lips, tongue and mucous membrane of the mouth itch and swell but this is not the rule and is seen more in those acute cases that seldom occur. Sali-

3. Ecker, E. E. and Biskind, M. A.: Allergic Reactions of Rabbit's Intestine During Anaphylactic Shock as Recorded Cinemotographically. *Arch. Path.*, 7:391-396, Mar., 1929.

4. Eyer-mann, C. H.: X-ray Demonstration of Colonic Reaction in Food Allergy. *J. Missouri M. A.*, 24:129-135, April, 1927.

5. Rowe, A. H.: Roentgen Studies of Patients with Gastrointestinal Food Allergy. *J. A. M. A.*, 100:394-400, Feb. 11, 1933.

6. Crispin, E. L.: Visceral Crises in Angioneurotic Edema. *St. Paul M. J.*, 18:127-133, 1916. Also in *Collected Papers of the Mayo Clinic*, 7:823-835, 1915.

7. Lennander, K. G.: Abdominal Pain. *J. A. M. A.*, 49: 836-840, Sept. 7, 1907.

8. Harrington, F. B.: Angioneurotic Edema: Report of Case Operated Upon During an Abdominal Crisis. *Boston M. & S. J.*, 152:362, 1905.

vation may accompany some cases and headache is a frequent complaint.

The pain symptom of gastrointestinal allergy is usually mild but occasionally may be severe, simulating an abdominal crisis but of shorter duration, lasting from six to eight hours. It is midabdominal at first but later may spread all over the abdomen. There are not the usual radiations so characteristic of surgical conditions. The pain as a rule is localized. Accompanying pain may occur in the extremities⁹ but this is not a true referred pain. These attacks appear without any relation to the taking of food and are prone to have nocturnal exacerbations. Most patients with upper abdominal symptoms are nauseated and may vomit, the vomitus frequently containing blood. Those with lower abdominal symptoms are more liable to have colic and diarrhea. It occasionally happens that there is an increase in the temperature, pulse and respiration, and a leucocytosis that makes the diagnosis difficult. The physician should bear in mind that these symptoms may characterize gastrointestinal allergy just as surely as any other bowel disorder.

One symptom which should never be overlooked but which should be watched for is the presence of cutaneous lesions such as urticaria or eczema. These lesions are more common in children than in adults but they are not confined to this group. They may occur simultaneously with acute gastrointestinal symptoms or immediately following the bowel distress or they may be chronic. In any case the skin manifestation is the most important lead to an allergic bowel and should be so considered. Asthma and other allergic reactions are just as significant as skin lesions, although they occur less frequently.

The following case illustrates some of the points so far considered.

A male child, age four, had eczema in varying degrees since birth. When egg, to which he was found sensitive, was removed from his diet, the eczema disappeared. Six months later this child developed severe cramps in the abdomen followed by vomiting, diarrhea and marked tenderness in the abdomen. Appendicitis was considered by the attending physician. The following morning the child was covered with eczema. It was then discovered that he had eaten a piece of cake which contained egg.

The disease is usually chronic with a history of frequent attacks for a short period, followed by a longer interval of comfort. Some cases, on the other hand, may show very irregular oscillations of frequency.

Many patients have discovered that enemas and purges give relief, and theoretically this is true, so after many attacks they have become accustomed to the use of strong cathartics in full doses. Many have learned from experience to abstain from certain foods, others have no suspicions whatever as to the source of trouble; some have certain food dislikes but no food experiences. The history of the patient's procedure to get relief, together with his food experiences and dislikes, are important factors in developing a complete picture of the case.

Examination reveals negative findings for the usual abdominal ailments. As a rule we find our patient to be of the hypometabolic type. Some have a neurotic tendency and are prone to be too much influenced by external stimuli. All have a generalized sensitive abdomen with the greatest tenderness around the umbilicus. In lower abdominal atopies the proctoscopic examination¹⁰ shows a red-denied canal with the edematous mucous membrane bathed in mucus. Roentgen studies show generally the condition of the bowel that has been described above. The blood counts are most always negative, though occasionally there may be a leucocytosis. Blood eosinophilia varies from normal to ten per cent as in all other hypersensitive conditions.

There is no one criterion by which the diagnosis can be made. The condition must be observed as a whole with the various points already mentioned kept in mind. The diagnosis consists of ruling out all other diseases presenting a like picture. It is neither wise nor safe to consider gastrointestinal allergy first. When this diagnosis seems to offer itself, one should attempt to establish an allergic state before finally accepting it. If one can find in the family or the individual's history, past or present, some evidences of hypersensitive reactions, he can assume that the patient has the ability to become sensitive.

To make an etiologic diagnosis is sometimes a more difficult task. The individual should first be skin tested. Positive reactions, of course, give some definite information. Unfortunately a negative reaction does not mean that the food is harmless to the patient. It may be that a split protein formed by digestion of that food is causing distress. The protein which is used for testing exists in the raw food. From this it is clear that skin tests alone do not form an adequate means of determining the etiologic factor. Various diet trials have been suggested for the determination of specific food of-

9. Cooke, R. A.: *Gastrointestinal Manifestations of Allergy*. Bull. New York Acad. Med., 9:15-24, Jan., 1933.

10. Gay, L. P.: *Gastrointestinal Allergy*. J. Missouri M. A., 29:7-10, Jan., 1932.

fenders, the most widely used being Rowe's elimination diets.¹¹

One might think that adrenalin would give relief in these bowel conditions but it is more likely to have no effect whatever. So adrenalin cannot be used to differentiate these hypersensitive reactions from other abdominal ailments. The finding of eosinophils in the stools¹² is much more dependable than the adrenalin test.

The consideration of gastrointestinal allergy has an important place in medicine but we should be warned against its misapplication, lest it be used to diagnose all obscure gastrointestinal conditions. It is not a diagnosis that should be considered by those who are unwilling to practice complete investigation. We should avoid using this diagnosis as an excuse for incomplete study, lest some real pathologic condition might be overlooked.

SYMPTOMS

No characteristic group of symptoms.

May imitate any gastrointestinal disease in part.

1. Some evidence of allergy usually present. Urticaria usually follows immediately. Any other atopic condition either past or present. Food dislikes. Food experiences.

2. Feeling of illness.

3. Dyspepsia.

4. Pain. Mild or severe. May be crisis type. Midabdomen or all over abdomen. Duration six to eight hours. Nocturnal exacerbation frequently. Not related to the taking of food. Usual radiations of surgical conditions not found. Pain in the extremities. Not a referred pain. Enemas and purges give relief.

5. Vomiting in upper tract cases. Blood occasionally.

6. Diarrhea in lower tract cases. Blood occasionally.

7. Headache.

8. Salivation.

9. Neurotic tendencies.

10. Chronicity. Frequent repetition of attacks.

DIAGNOSIS

There is no one criterion by which the diagnosis can be made. The condition must be observed as a whole.

1. Rule out other diseases.

2. Establish allergic states. Heredity. Past allergy. Present allergy, other than gastrointestinal symptoms.

3. Urticaria without past history of allergy.

4. Nature of condition. Symptoms as described.

5. Hypometabolic type.

6. Generalized sensitive abdomen with the points of greatest tenderness about the umbilicus.

7. Proctoscopic examination in lower bowel tract cases, edema and redness of the mucous membrane.

8. Skin tests may or may not be positive.

9. Diet trials important.

10. Roentgenography, barium retention in the stomach, spastic colon.

11. Eosinophils in stools.

12. Adrenalin test not to be relied upon.

11. Rowe, A. H.: Revised "Elimination Diets" for Diagnosis and Treatment of Food Allergy. *Am. J. Digest. Dis. & Nutrition*, 1:387-392, Aug., 1934.

12. Todd, J. C. and Sanford, A. H.: Eosinophils in Stools of Gastrointestinal Allergy. Page 443. *Clinical Diagnosis by Laboratory Methods*, Seventh Edition, Philadelphia, W. B. Saunders Co., Philadelphia and London, 1931.

URINARY PROTEOSE IN DERMATOLOGY

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Oriel and Barber¹ reported in detail a new treatment for dermatoses in 1930. This treatment consisted of the injection of a substance of complex composition which they termed "proteose." Proteose was obtained from the urine of patients with admittedly allergic states. It seemed to contain the specific antigens upon which the symptoms of the disease depended and it was employed for specific desensitization with remarkable efficiency in a large number of cases.

The method of preparing the proteose was described by Oriel² as follows:

Four hundred ccm. of urine is placed in a separating funnel and acidified with 25 per cent H_2SO_4 until acid to congo red paper. The indicator is absorbed to filter paper so that it is not dissolved in the urine. The acidified urine is then shaken vigorously with ether. The quantity of ether used is usually about a quarter of the volume of the urine, but if the proportion of colloidal nitrogen is high, it may be necessary to use a larger proportion of ether. The fluids are then allowed to settle out; after the separation appears to be complete, the lower layer consisting of urine is run off. The upper layer will be found to separate out further into two layers if allowed to stand. The lower layer is again run off and discarded. Alcohol is now added to the ethereal layer until precipitation, which takes place, is complete. Usually a rather larger volume of alcohol than of ether is required to ensure complete precipitation of the nitrogenous substances. The resulting precipitate is then centrifuged and the supernatant alcohol and ether are poured off. The precipitate is then suspended in a small volume of distilled water.

After suspension, the tube is again centrifugalized. The pH of the supernatant fluid will be found to be still on the acid side, owing to sulphuric acid in the urine having been carried over. In acid solution a proportion of the original precipitate, which consists of inorganic matter such as calcium sulphate, is dissolved, whereas the nitrogenous material required is not soluble in acid solution. It will be found that the remaining precipitate is readily soluble when the pH is adjusted to 8.0 with sterile N/10 NaOH, and should be dissolved at once. This solution is then added to 9 ccm. of Evans' solution.

Since their original report, other subsequent reports have been controversial, there being a diversity of opinions regarding the nature of the substance and the method in which it was obtained and the therapeutic results with it. Of particular interest to American dermatologists were the reports of Eichenlaub³ and Cornbleet and Kaplan.⁴ Eichenlaub was able to confirm the Prausnitz-Kustner reaction

1. Oriel, G. H. and Barber, H. W.: Proteose in Urine Excreted in Anaphylactic and Allergic Conditions. *Lancet*, 2:231-237, Aug. 2, 1930.

2. Oriel, G. H.: Further Observations on Biochemistry of Asthmatic Conditions, with Special Reference to Urinary Proteose. *Lancet*, 2:406-410, Aug. 1, 1933.

3. Eichenlaub, F. J.: Urinary Proteose in Dermatoses. *Arch. Dermat. & Syph.*, 27:316-325, Feb., 1933.

4. Cornbleet, T. and Kaplan, M. A.: Urinary Proteose in Eczema. *Arch. Dermat. & Syph.*, 30:497-507, Oct., 1934.

in one of his patients and reported many cases with gratifying therapeutic results, but Cornbleet and Kaplan obtained entirely negative results and concluded that proteose was not antigenic and was ineffectual as a therapeutic agent. (For a complete review of the literature the reader is referred to the reports by Cornbleet and Kaplan.)

The eventual fate of proteose, like any new therapeutic procedure, depends upon its clinical value. I have used the method in a small series of dermatologic cases, obtaining most gratifying results in some, moderate improvement in others, and complete failure in a few. These cases are reported at their face value, not as a scientifically controlled contribution to dermatologic research but simply as clinical tests.

The proteose in each of these cases was prepared through the generosity of Porro Laboratories. Mr. Porro followed the technic published in 1933 by Oriel,⁴ except that 1 to 30,000 merthiolate was used for a preservative instead of phenol.

REPORT OF CASES

Case 1. H. K., laborer, age 19, presented a chronic eczema of the face, arms, chest, neck and legs of nine years' duration. Proteose treatment was started March 28, 1933, with the injection intradermally of 0.1 cc. of a 1 to 100,000 dilution. There was no reaction so the dilution was decreased to 1 to 10,000 then 1 to 1,000 and 1 to 100. The patient reported less itching after the second injection and improvement in the appearance of his skin was noted after the third. The itching was relieved for two days following each injection. On April 14, 0.5 cc. was given, followed by local soreness of the arm but the patient was able to sleep all night without scratching, an unusual performance for him.

Following the eighth injection, which was given in the right arm on April 21, the patient became ill with chills and fever, enlarged tender glands in right axilla and temperature of 100° F. The arm was swollen and sore and a weeping exacerbation of the skin condition occurred. This reaction lasted two days but the itching did not recur. Treatment was resumed on the 28th with the dose reduced to 0.1 cc. There were no more severe reactions. After the fourteenth injection the patient stated that he was at least seventy-five per cent improved.

The doses were gradually increased, the larger doses being given intragluteally. They were followed by moderate reactions. A total of twenty-four injections was given over a period of three months. At the end of this period the patient was practically cured. He was seen three months later with still a few papules on the face and arms. He stated this was the longest period in nine years that he had been so well.

Case 2. T. P., age 35, laborer, presented an itching skin eruption on face, arms, trunk and scrotum, recurring at intervals for seventeen years and severe for two years. He had found that fruits, particularly cherries, strawberries, apples, blackberries and raspberries caused acute exacerbations of the eruption, also pastries, tomatoes, cabbage and eggs.

Proteose treatment was started on March 8, 1933. There were no reactions. After the third treatment he reported improvement and with the fifth he was better than at any time during the past two years and was eating eggs again.

his eruption was nearly gone except on the arms and there was no itching.

After four more injections he began eating cake, radishes and other things which he had previously been unable to eat.

Treatment was continued for three months, a total of twenty-eight injections. One year later his wife reported that he was still free from eczema and could eat everything. An excess of fruits, however, would bring out a little eruption.

Case 3. D. D., garageman, age 22, had dermatographism for six years. Proteose was obtained on March 28, 1933. He was given twelve injections without improvement, became discouraged and did not report for further treatment. There were no reactions.

Case 4. A. M., school boy, age 12, was brought to me with generalized eczema and ichthyotic skin, present constantly since the age of three months. The face, hands, arms and legs were especially involved. He was also undernourished and underweight. Proteose injections were started April 21, 1933, and given twice a week (thirty-five injections) until November 10. There were a few mild local reactions. The skin, at the end of this series, was still dry and ichthyotic but otherwise in good condition. The child had grown and was in good health. One year later the skin was still in good condition; he was using olive oil and boric acid ointment to allay the dryness. There was no itching.

Case 5. P. P., laborer, age 48, presented himself with a chronic mildly itching papulonodular eruption on the legs and body, of four and one-half years' duration. Proteose was started on May 5, 1933, and continued to November 7. There was slight relief from itching but not sufficient to warrant further treatment. Since then the patient has received autohemotherapy and milk injections but the condition remains about the same. No diagnosis has been made.

Case 6. B. L., railroad brakeman, age 35, presented himself with chronic urticaria of eight months' duration. Proteose was obtained and eleven injections given but without benefit. There were no reactions. The condition disappeared spontaneously about a year later.

Case 7. R. L., school girl, age 16, presented herself with exceedingly severe chronic generalized eczema. This first appeared at the age of ten months on the hands and flexures. It remained a few months and then went away, to return five years later as a generalized eruption accompanied with asthma. Proteose was started March 27, 1933. After twelve injections there was slight improvement and the patient ate walnuts without a reaction. Heretofore, walnuts had always produced a severe reaction with edema of the skin and asthma.

After fifteen injections an acute exacerbation with semipurulent superficial crusted lesions occurred on the fingers, arms and face. There seemed to be no relation between this exacerbation and the proteose injections. The condition was accompanied by diarrhea and generalized aching. She improved but was hospitalized a month later with a severe acute pyelonephritis.

Subsequently she was taken to Arizona where the skin condition cleared completely. She is now home again, however, and the eruption is returning. An effort will be made to resume treatment with new proteose.

Case 8. H. A., school girl, age 16, was first seen on April 28, 1933, with a papulovesicular eczema of ears, arms and legs since age of six months with long intervals between attacks. Proteose was given twice a week for two months. Improvement was slow but steady with one slight exacerbation after the eighth injection. There were no reactions. The patient moved away before treatments were completed but

reported on November 26, 1934, that she still had eczema of a mild type.

Case 9. D. K., school girl, age 19, presented herself with chronic eczema of face, scalp, ears, arms, neck and back, of two and one-half years duration. Proteose injections were given twice a week. There was no itching after the fourth treatment and the skin slowly improved, with one exacerbation when she started working as a house maid. She was given thirty-five injections, then stopped reporting. A follow-up has not been obtained.

Case 10. M. S., female, age eleven months, was brought to me with severe infantile eczema present since the age of three months. The mother had found foods aggravated the condition and had gradually eliminated oranges, potatoes, rice, apples, cereals, sugar, cream, butter and spinach from the diet. For many weeks the baby had been given practically nothing but skim milk and carrots.

When I first saw her on September 26, 1933, she was severely emaciated and there was a marked carotemia. She was placed on a liberal diet and intramuscular injections of proteose started on October 6. For a few hours following each treatment the child was restless and irritable but there were no other evidences of reaction. Improvement and gain in weight started immediately.

She was given a total of thirty-three injections. When the last proteose was given on February 3, 1934, she was a chubby, healthy appearing child. There was one exacerbation when she was given cod liver oil. The child was still in good health one year later.

Case 11. G. P., female, age 23, had chronic eczema about scalp, face, ears, neck and chest with relapses for four years. Clinically it resembled seborrheic eczema but did not respond to the usual treatments, including roentgen therapy. Ointments of various kinds seemed to aggravate the condition. Proteose was started on June 2, 1933, and continued for seventy-six injections. There were several mild reactions. Improvement was slow with occasional exacerbations. When last treated on March 29, her skin was in good condition. There had been no recurrence on November 20, 1934.

Case 12. C. M., female, age 35, presented herself with psoriasis and severe arthritis deformans. She had been having recurrent generalized attacks of pustular psoriasis with concurrent exacerbation of arthritis approximately twice a year for five years. With each attack she was bed-ridden and in severe pain for several weeks. The frequency and severity of the attacks was steadily increasing.

Proteose was started during a quiescent period on September 1, 1933, along with Goeckerman's tar and ultraviolet treatment for psoriasis. Severe local reactions were the rule at first but these were less severe as treatments were continued.

The psoriasis rapidly subsided and except for one very mild temporary recurrence without pus she has remained free. More than a year has elapsed since proteose was first started. There has been no apparent activity of the arthritis during this period, nor change in the deformity, either for better or worse. The patient is still taking proteose injections twice a week at her own insistence, she is afraid to stop for fear the attacks will recur.

COMMENT

The results in this series of cases are not uniform or spectacular. Several cases, however, have shown remarkable improvement and others have obtained considerable relief. It must be emphasized that these were all cases of long standing, chronics of the most stubborn types, most of whom had "made

the rounds" of the usual therapeutic procedures with little or no benefit. Whether this substance is a "proteose," an antigenic substance, a foreign protein or what not, as long as it benefits some of these sufferers I feel that it should not be entirely discarded.

I agree with Eichenlaub⁵ whom I quote: "There have been enough (a very few, but enough) outstanding therapeutic results from the method of Barber and Oriel to make me feel that the method should not be abandoned without further consideration. Even if it is only seldom that a stubborn eczema is improved and only occasionally that one is cured by this method of injection, I think it is worth a trial. Even if work should show that the specific antigen is picked up only occasionally, or even if the therapeutic results are obtained because of a nonspecific action or because of some chemical substance present, I think that the method should not be abandoned until every one is sure that it will not do some good."

SUMMARY

Twelve cases of chronic dermatoses were treated with proteose obtained from their own urine prepared according to the method of Barber and Oriel.

Those cases of eczema which clinically suggested an allergic etiology were in most cases remarkably improved.

One case of dermatographism and one of urticaria were not improved. One case of infantile eczema was remarkably improved. One case of arthritis deformans associated with psoriasis has been arrested for more than a year.

There is clinical evidence to support Eichenlaub in his plea not to abandon this method without further trial and study.

5. Eichenlaub, F. J.: Discussion on Cornbleet and Kaplan, *vide supra*.

CORPUS LUTEUM THERAPY. George W. Corner, Rochester, N. Y. (*Journal A.M.A.*, May 25, 1935), is aware that his discussion of corpus luteum therapy cannot immediately result in curative benefit to a single patient, nevertheless he believes that it will be profitable to consider the subject as it stands today, from the mutual standpoint of the practitioner and the investigator. Such consideration will not only explain the physiologic basis on which practical applications are to be worked out but also help, he hopes, to clear away the misconceptions and false hopes by reason of which in the past so many bottles and pill boxes have been filled with elegant but inert pharmaceuticals. Therefore he discusses the function of the corpus luteum, progesterin (the hormone of the corpus luteum favoring gestation), relaxin (another substance found in extracts of the corpus luteum, which has the property of relaxing the symphysis pubis in the guinea-pig in a manner similar to the normal relaxation which occurs in that species during pregnancy), the availability of progesterin, the clinical possibilities of corpus luteum therapy and its empirical preparations.

SURGICAL PROGRESS IN 1934

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The following abstracts are from the surgical literature of 1934 and are intended to suggest the year's trend of thought in some of the departments of general surgery.

Adson¹ relieved an otherwise incurable fronto-temporal migraine by a combination of surgical procedures designed to relieve the angiospasm and desensitize the meningeal vessels. Periarterial sympathectomy of the common carotid artery, ligation and division of the external carotid artery and removal of the superior sympathetic ganglion and upper sympathetic trunk for six cm. were done with instant and complete relief to date.

Gray² employed the Trendelenburg position postoperatively for two hundred seventy-six patients for the reduction of pulmonary complications following laparotomy. A reduction of thirty per cent in morbidity is claimed.

Downs³ carried out experiments to prove the carotid sinus an important factor in sudden deaths under gas anesthesia. Pressure just behind the jaw by the anesthetist should always be avoided. The addition of a small amount of ether is of considerable value.

Cutler and Owen⁴ treated cases of generalized osteitis fibrotic cystica by irradiation of the parathyroids. He noted a marked clinical improvement.

Ramsdell⁵ stresses the importance of removing the submaxillary gland in Ludwig's angina. This should be done early under local anesthesia and the submaxillary space loosely packed with gauze. The mortality is greatly reduced.

McClure⁶ cured a pharyngeal diverticulum in a one-stage operation by the use of a snare. The diverticulum was first exposed in the neck and inverted after ligation over a bulbous tip catheter. Removal by snare was easily carried out next day.

Rosenblum⁷ studied sixty-nine patients with gross

cardiac disturbance, in whom a subtotal thyroidectomy had been done. In nine there was angina pectoris. The subsequent improvement noted should encourage a more general use of thyroidectomy in selected cases of cardiac disability.

Kegel⁸ cured an intractable case of angina pectoris by the removal of a functionally and histologically normal thyroid gland. A gain in weight with lowering of the high blood pressure followed and the patient resumed work. Smithies commented on the advisability of selecting cases where little heart damage was present.

Purks⁹ reviewed the records of a series of sixty patients with organic heart disease in relation to postoperative deaths. Compared with the similar series of sixty noncardiacs he concludes that the well treated cardiac patient suffers little by comparison. There seemed to be, however, a greater incidence of pulmonary complications.

Pilcher and Overholt¹⁰ define the importance of a method of measuring the venous pressure in cases of venous obstruction in the upper mediastinum. There may be an absence of dilated veins in the neck and arm to attract attention. Lesions in or near the mediastinum should always be studied. Fifty cases are reported in which a majority were relieved by surgical means.

Livingston, Emy and Leiber¹¹ used evipal anesthesia in two hundred eighty cases at Bellevue Hospital. He comments on the safety, lack of nausea and headache, wide applicability and quick recovery. He notes a few contraindications and precautions.

Davis¹² carried out a series of experiments at Union Memorial Hospital in Baltimore to determine the importance of adequate masking during operation. He was quickly convinced that the nose as well as the mouth should always be masked by the entire operating room personnel.

Carabba¹³ uses a sclerosing solution for the cure of certain cases of bursitis, cysts, sinuses, hemangiomas, ganglion, external hemorrhoids and vaginal varices. His technic is described.

8. Kegel, A. H.: Bull. N. Shore Branch Chicago M. Soc., Jan. 20, 1934.

9. Purks, W. K.: Cause of Death of Patients with Organic Heart Disease Subjected to Surgical Operation. Ann. Int. Med. 7:885-894, Jan., 1934.

10. Pilcher, L. S., Jr., and Overholt, R. H.: Venous Obstruction in Upper Mediastinum. Ann. Surg. 100:74-86, July, 1934.

11. Livingston, E. M., Emy, S., and Lieber, H.: Evipal Sodium; Short Intravenous Anesthesia. Am. J. Surg. 26: 516-521, Dec., 1934.

12. Davis, J. S.: Importance of Adequate Masking During Operation. Ann. Surg. 100:1008-1015, Nov., 1934.

13. Carabba, V.: Sclerosing Injections in Surgery. Ann. Surg. 99:668-675, April, 1934.

1. Adson, A. W.: Right Frontotemporal Migraine Relieved by Surgical Methods; Report of Case. Proc. Staff Meet., Mayo Clin. 9:673-676, Nov. 7, 1934.

2. Gray, H. K.: Use of Trendelenburg Position in Prevention of Postoperative Pulmonary Complications. Proc. Staff Meet., Mayo Clin. 9:453-454, Aug. 1, 1934.

3. Downs, T. M.: Carotid Sinus as Etiological Factor in Sudden Anesthetic Deaths. Ann. Surg. 99:974-984, June, 1934.

4. Cutler, M. and Owen, S. E.: Irradiation of Parathyroids in Generalized Osteitis Fibrosis Cystica; Report of Case. Surg., Gynec. and Obst. 59:81-86, July, 1934.

5. Ramsdell, E. G.: Ludwig's Angina. Advantages of Submaxillary Resection. S. Clin. North America. 14:315-325, April, 1934.

6. McClure, R. D.: Pharyngeal or Pharyngoesophageal Diverticulum; New Operation; Inversion and Snare. Am. J. Surg. 24:732-745, June, 1934.

7. Rosenblum, H. H., and Levine, S. A.: What Happens Eventually to Patients with Hyperthyroidism and Significant Heart Disease following Subtotal Thyroidectomy. Am. J. M. Sc., 185:219-233, Feb., 1933.

Biegeleisen¹⁴ urges the importance of the sedimentation rate to determine infection before beginning injection of varicose veins. Latent infection may be aroused by injection and a migrating phlebitis ensue.

Weeks¹⁵ lauds the use of equal parts of ninety-five per cent alcohol and glycerine used as a wet compress in certain types of infections. Particularly indicated in absence of the skin or other lacerating injuries, infectious processes such as boils with lymphangitis, inflammations not actively infectious such as traumatic bursitis, bunions and tenosynovitis. After primary cleansing of the skin the solution is applied on a layer of cotton and covered by rubber sheeting. The superiority of this dressing to other forms such as dry dressings, ointment dressings, solutions such as "epsom salts soak" is quickly realized.

Kyle¹⁶ values twenty-five per cent glycerine solution in water as an application which combines the advantages of a wet and dry dressing for certain infections. Even when covered with gutta-percha it does not macerate the skin and the addition of an antiseptic is not necessary.

Loehr¹⁷ commends the use of cod liver oil in vaseline for the treatment of wounds, burns, complicated fractures and defects left by phlegmons. Rapid healing forms a soft cicatrix with a minimum of contracture.

Martin and Fowler¹⁸ find tannic acid to be an ineffective germicide below ten per cent strength. The use of 1/10,000 bichloride of mercury or merthiolate, instead of distilled water, makes an effective germicidal solution.

Martin and Ellis¹⁹ report upon aspiration biopsies at the Memorial Hospital. Fourteen hundred post-operative diagnoses of carcinoma are recorded. The method is invaluable for many types of tumors on account of its simplicity. Indications and technic are described.

Stone, Owings and Gey²⁰ transplanted tissue from certain endocrine glands after first growing it in the serum and plasma of the new host. The axilla or

groin was the selected place for transplants. Two clinical cases are reported where parathyroid tissue was thus transplanted with marked clinical improvement. The graft in one was human and in the other canine.

Crile²¹ performed denervation of the adrenals in three hundred eight cases. Over ninety per cent of those having neurocirculatory asthenia, hyperthyroidism or peptic ulcer were cured or greatly improved. Selected cases of diabetes, epilepsy and early hypertension showed promising results. The operation was ineffective with established hypertension, Raynaud's disease, Buerger's disease, asthenia, cyanosis and neurasthenia.

Lehman²² recites his experiences with three operations performed for internal hydrocephalus. A nephrectomy was done and the upper end of the ureter anastomosed to the dura in the region of the third lumbar vertebra. The arachnoid was thus drained along the ureter. Whereas his results were discouraging, he considers the operation has not yet had a fair trial.

Priestley and Wilbur²³ review one hundred clinical records of essential hematuria and comment on the histology of the ten kidneys removed. Seventy-eight per cent had demonstrable foci of infection in teeth or tonsils. The regional pathology was largely in the papillae, the changes being hemorrhagic, inflammatory or fibrotic. The disease is a clinical entity and nephrectomy is often the only cure.

Stern²⁴ injected ninety-five per cent alcohol in the subarachnoid space for the relief of excruciating pain of a chronic nature. The procedure is practical and safe, and motor paralysis does not ensue. Abstracts are given of nineteen cases so treated.

Parmley²⁵ has devised a plaster-paris shell for use after reduction of compression fractures of the thoracic and lumbar vertebrae. Its many advantages are enumerated.

Maes, Boyce and McFetridge²⁶ were struck by the contradictory conclusions of recent writers who studied wound disruption with postoperative evis-

14. Biegeleisen, H. I.: Diagnosis of Phlebitis in Varicose Veins with Aid of Sedimentation Rate. *Ann. Surg.* 99: 661-667, April, 1934.

15. Weeks, A.: Superficial Abrasion with Secondary Infection and Lymphangitis. *S. Clin. North America*, 14: 1537-1545, Dec., 1934.

16. Kyle, D.: Practitioner, 131:319, Sept., 1933.

17. Löhr, W.: Cod Liver Oil Treatment of Wounds. *Lancet*, 2:367, Aug. 18, 1934.

18. Martin, J. D., and Fowler, C. D. Germicidal Effects of Tannic Acid, With and Without Mercurial Antiseptics. *Ann. Surg.*, 99:993-996, June, 1934.

19. Martin H. E., and Ellis, E. B.: Aspiration Biopsy. *Surg., Gynec. and Obst.*, 59:578-589, Oct., 1934.

20. Stone, H. B., Owings, J. C. and Gey, G. O.: Living Grafts of Endocrine Glands. *Am. J. Surg.*, 24:386-395, May, 1934.

21. Crile, G.: Indications for and End Results in 308 Denervations of Adrenal Glands. *Am. J. Surg.*, 24:378-385, May, 1934.

22. Lehman, E. P.: Ureteroarachnoid (Ureterodural) Anastomosis with Report of Three Cases. *Ann. Surg.*, 100: 887-905, Nov., 1934.

23. Priestley, J. T. and Wilbur, D. L.: Essential Hematuria. *Proc. Staff Meet., Mayo Clinic*, 9:348-352, June 13, 1934.

24. Stern, E. L.: Relief of Intractable Pain by Intraspinal (Subarachnoid) Injection of Alcohol. *Am. J. Surg.*, 25:217-227, Aug., 1934.

25. Parmley, V.: Compression Fractures of Vertebral Bodies; New Method of Attempt at Reduction and Immobilization. *Am. J. Surg.*, 25: 419-426, Sept., 1934.

26. Maes, U., Boyce F. F. and McFetridge, E. M.: Post-operative Evisceration with Analysis of 44 Cases. *Ann. Surg.*, 100:968-982, Nov., 1934.

ceration. He thinks rupture is possible with any kind of wound closure, using any type of suture material, but favors silver wire, gauge twenty, as described by Reid, in acute emergencies.

Meleney and Howes²⁷ reviewed the records of fifty-five cases with disruption of the abdominal wall. On the average this took place from the seventh to the tenth day after operation and there was a mortality of forty-four per cent. He recommends the use of silk in clean wounds, otherwise mattress sutures in addition to a continuous fine chromic suture. The number 0 size has a sufficient tensile strength, causing less exudation and delayed absorption. In some patients there is a peculiar body tissue function that dissolves catgut too rapidly.

Cunha²⁸ discusses the etiology and pathology of primary duodenitis. Symptoms are often identical with those of duodenal ulcer but the roentgen findings show an absence of an upper niche; also irritability of the duodenal bulb with diminution in its size are commonly noted.

Clute and Swinton²⁹ plead for more general exploration of the common duct and outlines specific indications. Aids to exposure, such as early ligation of the cystic artery with traction on the gallbladder and the use of a metal catheter for suction, are described. The mortality should not be increased by this exploration.

Eliason and Ebeling³⁰ reviewed the cases of peptic ulcers at the University of Pennsylvania during ten years. The mortality from hemorrhage was two and seven-tenths per cent and for this complication medical treatment is advocated. The mortality following perforation was eleven per cent. Where gastroenterostomy was added to closure of the ulcer the mortality was not increased.

Thorek³¹ details the records of seventy-five unselected cases where cholecystectomy was performed by the electrocoagulation technic. He claims a substantial reduction in mortality. Coagulation of the gallbladder bed is done without charring and drainage is unnecessary.

Gordon-Taylor,³² in 1927, removed the greater

part of the pancreas for a large carcinoma of the body. The patient today is in excellent health and encourages him toward further effort in the cure of this type of carcinoma.

Handley³³ employed radium in seven cases of carcinoma of the pancreas with encouraging results. One patient has remained well for seven years and another had life prolonged for two years. In the others who died at various periods he did not believe that radium hastened death.

Moss and McFetridge³⁴ found the recent mortality from intestinal obstruction at the County Hospital in New Orleans to have been reduced more than fifty per cent. Proper preoperative preparation, chiefly directed to the prevention of perverted blood chemistry, restriction of surgical procedures to the relief of the obstruction, the use of spinal anesthesia, the use of roentgenography as a diagnostic measure and the early entrance to hospital, was the dominant factor in this reduction.

Elman³⁵ warns against the sudden deflation of the acutely distended intestine of lower bowel obstruction. Sudden lowering of the pressure prevents a proper blood flow which should carry away products in the capillaries of the intestinal wall. A method of gradual deflation is suggested.

Judd and Phillips³⁶ favor the use of chewing gum for blocking the external opening of intestinal fistulae. Such effective closure may produce cure or at least so greatly improve the condition of the abdominal wall that surgery could be more successfully carried out.

Brown³⁷ studied eighteen cases of regional ileitis, fourteen being in males. The ages varied from nine to sixty-one years and the majority had been sick for years with pain and vomiting as prominent symptoms. Physical findings are usually meager. Resection or side-tracking of the diseased segment is the only satisfactory treatment.

Held and Goldbloom³⁸ remind us of the importance of chills in acute appendicitis. Infectious thrombosis of the mesenteroleum is usually present and its resection should be included with appendec-

33. Handley, W. S.: Pancreatic Cancer and Its Treatment by Implanted Radium. *Ann. Surg.*, 100:215-223, July, 1934.

34. Moss, W. and McFetridge, E. M.: Acute Intestinal Obstruction. Comparative Study of 511 Cases, with Special Reference to Lowered Mortality Achieved by Modern Methods of Therapy. *Ann. Surg.*, 100:158-166, July, 1934.

35. Elman, R.: The Danger of Sudden Deflation of Acutely Distended Bowel in Late Low Intestinal Obstruction. *Am. J. Surg.*, 26:438-446, Dec., 1934.

36. Judd, E. S. and Phillips, J. R.: New Method of Improving Condition of Abdominal Wall Preliminary to Closure of Intestinal Fistulas. *S. Clin. North America*, 14:521-525, June, 1934.

37. Brown, P. W.: Regional Enteritis. *Proc. Staff Meet., Mayo Clin.*, 9:331-332, May 30, 1934.

38. Held, I. W. and Goldbloom, A. A.: Three Rare Intra-abdominal Cases. *S. Clin. North America*, 14:389-405, April, 1934.

27. Meleney, F. L. and Howes, E. L.: Disruption of Abdominal Wounds with Protrusion of Viscera. *Ann. Surg.*, 99:5-13, Jan., 1934.

28. Cunha, F.: Primary Duodenitis. *Am. J. Surg.*, 25:70-79, July, 1934.

29. Clute, H. M. and Swinton, N. W.: Exploration of Common Duct in Gallstone Surgery. *Surg., Gynec. & Obst.*, 59:906-912, Dec., 1934.

30. Eliason, E. L. and Ebeling, W. W.: Catastrophes of Peptic Ulcer. *Am. J. Surg.*, 24:63-82, April, 1934.

31. Thorek, M.: Electrosurgical Obliteration of Gallbladder; 75 Consecutive, Unselected Cases without Mortality. *J. A. M. A.*, 103:169-174, July 21, 1934.

32. Gordon-Taylor, G.: Radical Surgery of Cancer of Pancreas. *Ann. Surg.*, 100:206-214, July, 1934.

tomy. The ileocecal vein, if thrombosed, is also ligated. This may be done at a secondary operation, if chills continue after appendectomy, to prevent pylephlebitis with multiple liver abscesses.

Wood³⁹ discusses appendicitis in the aged and emphasizes its confusion with intestinal obstruction. Although pain is the first symptom in ninety-five per cent of cases, the prodromal symptoms may be slight and vague. The most striking sign was distention. There was also an increase in the white count, although it was frequently below ten thousand. The temperature might be slightly above normal. Although localized tenderness was more or less constant, muscular spasm was frequently absent.

Potter⁴⁰ tabulates the cases of appendicitis with septic peritonitis during ten years and finds a mortality of thirty per cent. In two-thirds death was due to paralytic ileus. Recently he has used pitresin in one hundred cases and no paralytic ileus has developed, moderate distention occurring in ten cases only. His recent mortality from acute diffuse peritonitis is fourteen per cent. He cites five hundred fifty other abdominal operations where pitresin was used and paralytic ileus did not develop. He advises that the first dose be given intramuscularly before operation and that eight to twelve doses be given at intervals of four hours thereafter. The colon is irrigated after the final dose.

Young and Marks⁴¹ injected amniotic fluid concentrate transperitoneally to induce a productive reaction preliminary to surgery on the large intestine. Fifty to one hundred cc. were given five to eight hours before operation. The general reaction was usually insignificant. A reduction in mortality resulted.

Behan⁴² claims a great reduction in mortality in acute generalized suppurative peritonitis by the use of seventy per cent alcohol for intraperitoneal lavage. Cases of perforative appendicitis, perforations of duodenal or gastric ulcers and cases of pelvic peritonitis are typical. The alcohol is syphoned off within a few minutes and adequate drainage employed.

Burnett⁴³ reminds us of the great value of rectal drainage of pelvic abscesses in the male. A simple

procedure, it may avoid laparotomy. Appendicitis is the usual primary cause.

Craig⁴⁴ illustrates the indications for section of the presacral sympathetic nerves in a series of case reports. Uncontrollable bladder pain or dysfunction and severe dysmenorrhea were relieved. Cases of Hirschsprung's disease were much improved. For advanced cases of this disease, however, lumbar sympathectomy is advised.

Counsellor and Craig⁴⁵ have obtained cures in certain refractory cases of dysmenorrhea by resection of the superior hypogastric plexus. Relief is permanent and does not interfere with normal menstruation or child bearing.

Leriche and Fontaine⁴⁶ advocate novocaine infiltration of the lumbar sympathetic nerve for the treatment of postoperative femoral phlebitis. Several injections may be required. Heat and comfort in the affected limb follow the injections which should be begun early and, where there is pain and fever, continued daily.

Graham⁴⁷ finds many uses for free omental grafts in abdominal surgery and indicates important points in the technic of application. They resist infection, are hemastatic, prevent crippling adhesions and strengthen weak suture lines.

Andrews⁴⁸ deplores the general misunderstanding of the profession in regard to direct inguinal hernia. This condition is not a true hernia but a bulging of the peritoneum and transversalis fascia into the floor of the inguinal canal, where the conjoined tendon is deficient. It is never found in women or in men before the age of twenty-five. Rarely is operation indicated and then only in those cases where a diverticulum has formed or where pain is present. The condition is harmless but, where recurrence takes place after operation, it may assume a degree of serious importance. He describes the salient points in diagnosis.

Bellas⁴⁹ still finds complete vaginal closure a satisfactory method of curing certain cases of uterine prolapse after the menopause. Poor risks and recurrences after other surgical procedures are the

39. Wood, C. B.: Acute Appendicitis in Aged; Study of 43 Cases Occurring after Age of 60. *Am. J. Surg.*, 26: 321-325, Nov., 1934.

40. Potter, P. C.: Relation of Postoperative Paralytic Ileus to Mortality in Acute Appendicitis. *Ann. Surg.*, 99: 985-988, June, 1934.

41. Young, E. L., Jr. and Marks, G. A.: Preoperative Preparation of Peritoneum in Surgery of Large Intestine. *Surg., Gynec. & Obst.*, 59:610-615, Oct., 1934.

42. Behan, R. J.: Acute Generalized Suppurative Peritonitis; Treatment Intraabdominal Lavage with Ethyl Alcohol. *Am. J. Surg.*, 25:28-34, July, 1934.

43. Burnett, W. E.: Rectal Drainage of Pelvic Abscess in Males. *S. Clin. North America*, 14:155-161, Feb., 1934.

44. Craig, W. M.: Resection of Presacral Sympathetic Nerves; Its Clinical Application. *S. Clin. North America*, 14:673-683, June, 1934.

45. Counsellor, V. S. and Craig, W. M.: Treatment of Dysmenorrhea by Resection of Presacral Sympathetic Nerves; Evaluation of End-Results. *Am. J. Obst. & Gynec.*, 28:161-172, Aug., 1934.

46. Leriche, R. and Fontaine, R.: Isolated Anesthesia of the Stellate Ganglion. *Presse. Med.*, Paris, 42:849, 1934.

47. Graham, H. F.: Free Omental Grafts in Abdominal Operations. *Ann. Surg.*, 100:960-967, Nov., 1934.

48. Andrews, E.: Andrews Imbrication Method for Inguinal Hernia. *S. Clin. North America*, 14:919-926, Aug., 1934.

49. Bellas, J. E.: Prolapse of Uterus, *Am. J. Surg.*, 25: 258-261, Aug., 1934.

usual indications. Each vaginal wall is denuded and the surfaces sutured together.

Burch⁵⁰ advocates the vaginal approach where ligation of the fallopian tubes is done for sterilization. His special technic is described and is easily carried out.

Preusser⁵¹ produced relaxation of the sphincter ani by injecting an anesthetic such as butesin dissolved in sweet almond oil. The relaxation lasts for four to seven days, giving relief from many painful rectal conditions. It is a superior method to divulsion of the sphincter.

Kilbourne⁵² collected data on six thousand cases of internal hemorrhoids. Treatment by injection was without mortality or stricture, though recurrence was slightly more frequent than after surgery. Phenol in olive oil and quinine-ureahydrochloride were satisfactory solutions for injection.

Smith⁵³ mentions the importance of prolan A determination in the diagnosis of metastasis after orchidectomy for tumor. The type of tumor and its response to roentgen therapy can be gauged.

Cohn⁵⁴ injected antuitrin S for the cure of undescended testicle. The results were almost uniformly satisfactory, although in some cases surgery was necessary to complete the descent.

Ghormley⁵⁵ introduces certain modifications of Sistrunk's operation for elephantiasis. Spinal anesthesia, use of a tourniquet with supportive therapy during the operation are some of these, while the tourniquet is released and reapplied several times during closure. The interval between the first and second stages is lengthened from three to six months.

Reid⁵⁶ finds many cases of peripheral vascular disease to be improved by the use of the Pavaex treatment unit. Passive vascular exercises are produced by alternately drawing blood to the limbs and then forcing it out again. Thus it encourages the development of a collateral circulation while relieving painful symptoms.

OPERATION FOR DIVERTICULUM OF THE ESOPHAGUS

FACILITATED BY USE OF NASAL CATHETER AND STOMACH TUBE

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In operating for diverticulum of the esophagus, finding the sac is perhaps the most essential technical step of the operation. Some operators, even though they have many cases to their credit, insist on having a bronchoscopist at the operation. They find that the light at the end of the bronchoscope, which has been passed into the sac, facilitates the operation.

Unfortunately many of us do not have these facilities. I have found that a nasal catheter can be passed into the sac before the operation. After the esophagus and its diverticulum have been exposed palpation of the catheter makes identification easy.

The other essential technical step in this operation is to ligate the sac, no more, no less. As the neck of the sac comes off the posterior wall of the esophagus, its exposure causes distortion. However, by passing a large stomach tube before surgery, the esophagus is no longer collapsed; distortion is more easily appreciated. After ligation and before amputation of the sac, the release of tension will easily demonstrate if enough or too little mucosa has been tied off (figs. 1, 2, 3).

CASE REPORT

Mrs. P., 53 years, had been having progressive difficulty in swallowing for fifteen months. She had been able to swallow liquids only for the past seven months. She had noticed that on leaning forward a gurgling noise would sometimes occur in the throat, immediately following which swallowing would be much easier. Fluoroscopy revealed a diverticulum of the esophagus. The diverticulum could not be felt in the neck. Physical examination was essentially normal, except for loss of weight.

January 16, 1935, the first stage operation was done under nitrous oxide and oxygen anesthesia. A nasal catheter had been passed into the sac before operation and made identification of the sac easy. The end of the sac was sutured to the skin at a higher level than its mouth. Vaseline gauze was placed around the sac, so that the tissue reaction would seal off the mediastinum. Upon recovery from the anesthetic, the patient could swallow without difficulty, except for a postoperative soreness that lasted several days. Hoarseness developed the day after operation and lasted two days more. This was likely due to edema around the recurrent laryngeal nerve. The packing was removed by the fifth day. The wound healed by first intention, and the patient left the hospital the eighth day. Her postoperative temperature had never been above 99.0°, and she had been swallowing solid food since the second day.

January 30, two weeks after the first operation, the second stage operation was done under nitrous oxide and oxygen anesthesia. A large stomach tube had been passed before operation. This facilitated ligating the sac in the proper place. After cutting off the sac and touching the stump with carbolic acid and alcohol, a very small strip of zinc oxide

50. Burch, L. E.: Sterilization of Females. *Am. J. Surg.*, 24:550-562, June, 1934.

51. Preusser, W. F.: Control of Spastic Anal Sphincter. *Am. J. Surg.*, 25:327-329, Aug., 1934.

52. Kilbourne, N. J.: Internal Hemorrhoids: Comparative Value of Treatment by Operative and by Injection Methods; Survey of 62,910 cases. *Ann. Surg.*, 99:600-608, April, 1934.

53. Smith, H. L., and Parker, R. L.: Metastasis from Testicular Teratoma with Demonstration of Prolan A in the Urine. *Proc. Staff Meet., Mayo Clin.*, 9:317-321, May 30, 1934.

54. Cohn, S.: Anterior Pituitary Like Principle in the Treatment of Maldescent of the Testicle. *J. A. M. A.*, 103:103-105, July 14, 1934.

55. Ghormley, R. K., and Overton, L. M.: Surgical Study of Severe Lymphedema of the Extremities; A Study of End Results. *Proc. Staff Meet., Mayo Clin.*, 9:564-566, Sept., 1934.

56. Reid, M. R.: Peripheral Vascular Diseases. *Am. J. Surg.*, 24:11-35, April, 1934.

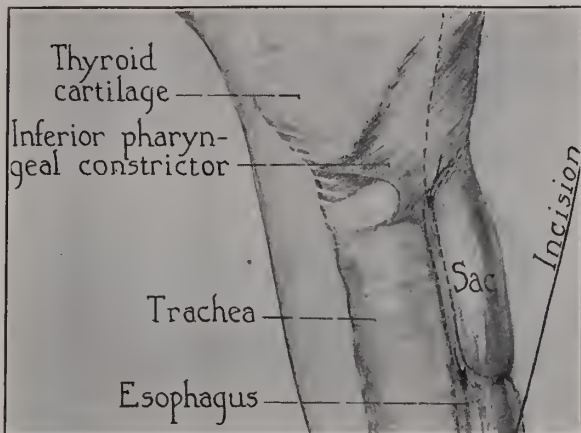


Fig. 1. Shows the difficulty of identifying the sac of the diverticulum. Both the sac and the esophagus are empty and flat. They are of the same general consistency and appearance. The dependent portion of the sac is separated from the esophagus by a fine line that looks like a fibrous band, making a slight transverse constriction across the esophagus. However, a nasal catheter had been passed into the sac before the operation, and the end of the catheter felt in the end of the sac made identification easy.

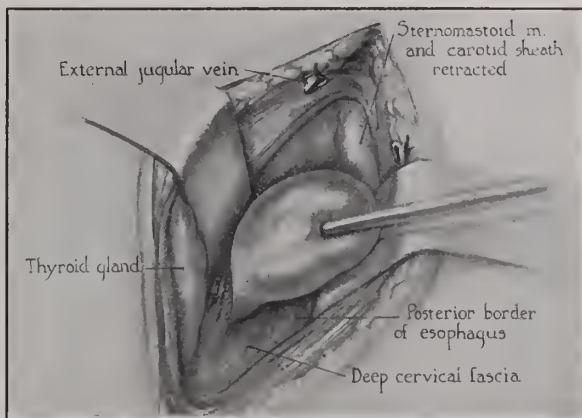


Fig. 2. Shows all the important structures but three. The superior belly of the omohyoid lies upon the deep cervical fascia and has been cut; we have not crowded the picture with it. The middle thyroid vein has been cut, and the tied ends are hidden by the retractors. The recurrent laryngeal nerve was not seen.

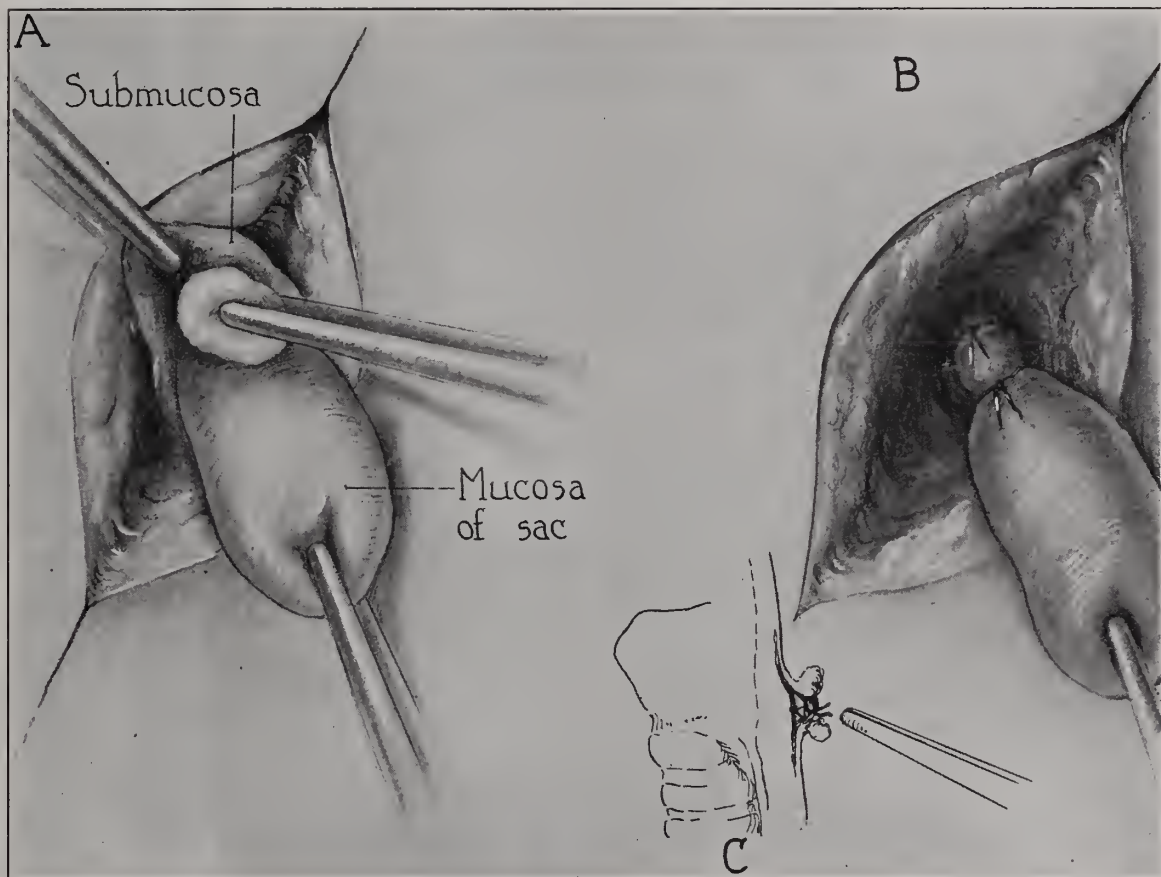


Fig. 3. Shows the essential step in the second stage operation: A. The submucosa of the sac is being pushed away from the now edematous mucosa. B. To prevent tying off too much mucosa and thus causing a stricture, and to assure tying off enough mucosa and thus preventing

recurrence, a large stomach tube had been passed before the operation. After ligating the mucosa and releasing tension, it can easily be seen whether the ligature occludes more or less than the sac. C. It is not easy to place the ligature in exactly the right place, as the tension on the sac for exposure distorts the neck of the sac.

gauze was placed from the stump to the outside. There was no discomfort, following this procedure. The gauze was removed in five days. The patient took liquids from the night of the operation until the seventh day, when all drainage stopped. Two days later she left the hospital on a full diet. There had been no febrile reaction. I last saw her

seven weeks after the second operation, at which time she mentioned only a slight anesthesia, due to cutting the cutaneous branches of the spinal accessory nerve. A phone call fourteen weeks after the last operation revealed that she had regained her weight, and was swallowing without difficulty.

BOWEL DISTENTION

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Bowel distention is an ominous manifestation of advancing disease. It may arise as a complication when the primary pathology is in the heart or the lungs. It is always a menace in the presence of any intraabdominal disturbance and frequently threatens the lives of patients whose disease is confined to the central nervous system or to their bones and joints. It seems to be ubiquitous. But clinicians have written very little about it for they have found that a study of bowel distention leads into highly speculative fields, where theories seem to be based on theories. The phenomena which underly it interlock and are bewildering.

If we are to be practical in a discussion of this kind, we will have to begin with the fact that, irrespective of what forces may be at work in producing the condition, a small bowel becomes distended because gas, fluid or solid material or all three of them have collected in it, and do not or can not pass on down the intestinal canal. With a platitude as obvious as this as a starting point, it will be seen that we can limit our field still further by avoiding a consideration of the part which solid material plays in the condition. For it is apparent that solid material contributes to bowel distention simply in a mechanical way or by subsidizing the phenomena which underly the collection of gas or fluid in the intestinal tract.

GASES IN THE BOWEL

From a general survey it seems clear that the gases which play a part in bowel distention must come from one or more of five sources.

Swallowed air is undoubtedly one of the most important sources of gas in the bowel. The work of McIver¹ and other clinicians, as well as that of a number of reliable experimental workers, has established this fact. In this way oxygen, a small amount of carbon dioxide and a large quantity of nitrogen are introduced directly into the stomach and thence into the bowel. Belching, vomiting, eating and drinking in the recumbent position are some of the ways by which the atmospheric air gains access to the stomach.

Fermentation and putrefaction are universally recognized as an important source of gas. Carbon dioxide, methane, hydrogen, hydrogen sulphide and

perhaps some other less important gases such as carbon monoxide are formed in this way. The rate of production as well as the partial pressures of these gases depend partly on the intestinal flora and partly on the pabulum available in the lumen of the intestine.

Metabolism in the bowel wall and, as we will see, the gaseous content of the general peritoneal cavity resulting from metabolism undoubtedly contribute to bowel distention. The only gas of any consequence having its origin in this way is carbon dioxide.

The acid normally found in gastric secretions acts on the alkaline duodenal content, breaking up the carbonates and liberating large quantities of carbon dioxide. Von Bung² estimated that at least six liters of carbon dioxide was produced in this way every day by the normal man.

The fifth, and certainly one of the most important causes of meteorism in a large number of common clinical conditions, is a *deposit of gas from the blood*.³ We will consider it later.

It is impossible to arrive at any adequate understanding of the part which gas plays in bowel distention without taking into consideration the basic laws which govern the action of gases in the living body. Physiologists usually consider that the tissues are more liquid than solid and it is usually, although not always, admitted that the laws of diffusion govern the passage of gases through living tissues.

For our purpose those laws can be stated very briefly. Graham's law states that the rapidity of diffusion of a gas is directly proportional to the square root of the density of the gas. Exner proved that the rate of diffusion is proportional to the coefficient of solubility of the gas in the fluid and inversely proportional to the square root of the density of the gas. Henry laid down a law a long time ago to the effect that, if a gas is simply in solution, and there is no chemical combination taking place, the amount dissolved at a given temperature varies directly with the pressure. In other words, when the pressure is doubled the amount of gas dissolved is doubled. Dalton's law of partial pressures states that in a mixture of gases each gas exerts the same pressure as it would, if it alone were present in the space occupied by the mixture. That is another way of saying that, if a number of gases are brought together, each of them will be distrib-

1. McIver, M. A., Benedict, E. B., and Cline, J. W., Jr.: Postoperative Gaseous Distention of Intestine; Arch. Surg., 13:588-604, Oct., 1926. McIver, M. A., Redfield, A. C. and Benedict, E. B.: Gaseous Exchange Between Blood and Lumen of Stomach and Intestines; Am. J. Physiol., 76:92-111, March, 1926.

2. Bung, G.: Lehrbuch der Physiologie des Menschen, 2nd Ed., Leipzig, Vogel, 1905.

3. Kantor, J. L. and Marks, J. A.: A Study of Intestinal Flatulence. Ann. Int. Med., 3:403-422, Nov. 5, 1929.

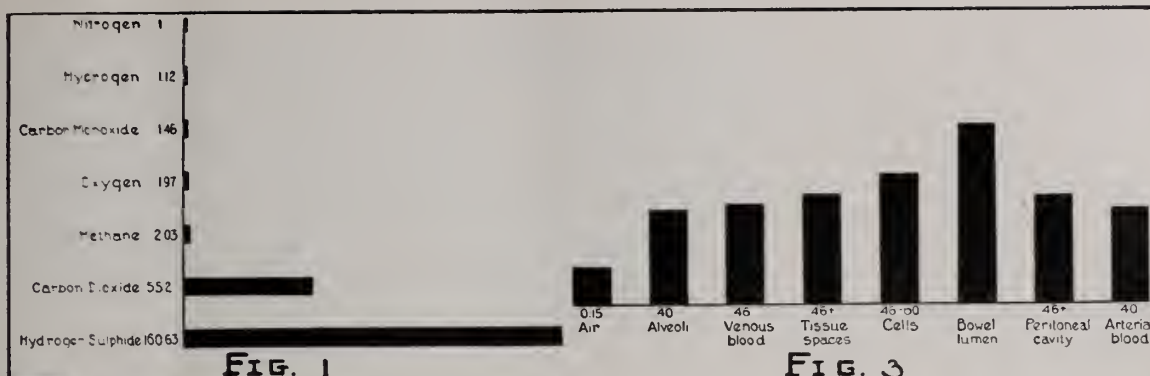


FIG. 1

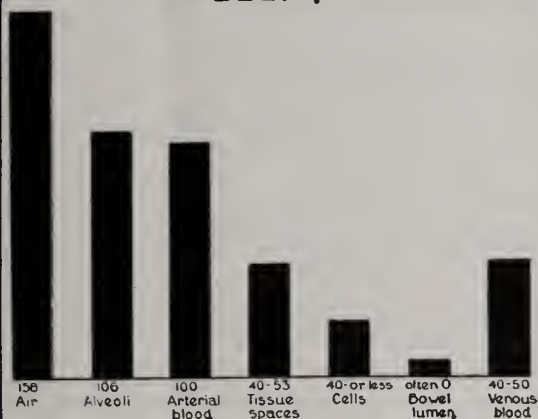


FIG. 2

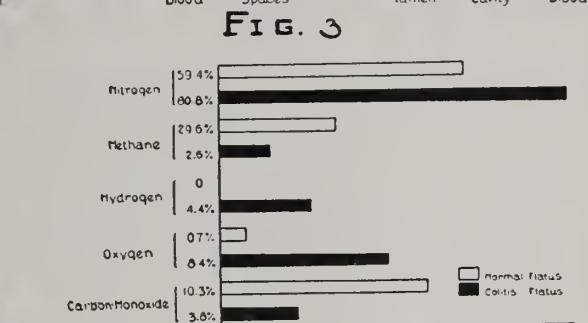


FIG. 3

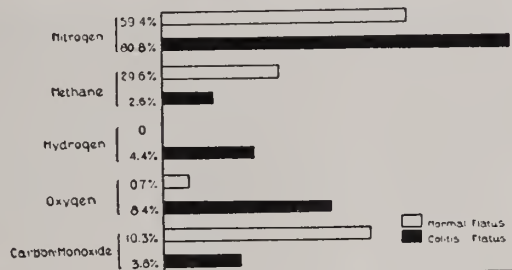


FIG. 4

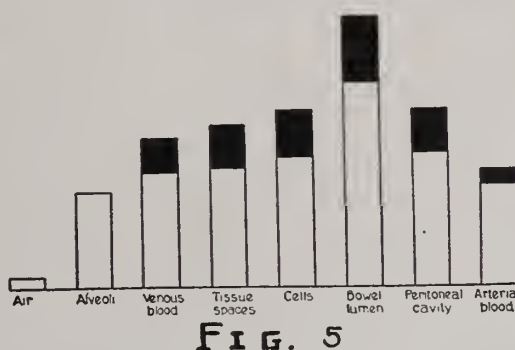


FIG. 5

Fig. 1. Indicating volume of various gases absorbed by unit of water.

Fig. 2. Oxygen partial pressure expressed in mm. of Hg.

Fig. 3. Carbon dioxide partial pressure in mm. of Hg.

Fig. 4. Comparing the percentage of gases which Fries found in normal flatus with that found by Basch in the flatus of a colitis case.

Fig. 5. Carbon dioxide pressure in venous obstruction. □ Normal; ■ increased pressure.

uted through the whole space as if the other gases were entirely absent.

Before going further into this discussion it is necessary to remind you that atmospheric air exerts a total pressure at sea level of about 760 mm. of Hg. This atmosphere is made up of carbon dioxide 0.02 per cent, argon 0.94 per cent, oxygen 20.8 per cent, nitrogen 77.32 per cent and water 0.92 per cent. From this it will be seen that oxygen has a partial pressure of (20.8 per cent of 760) 158, carbon dioxide almost nil and nitrogen 595 mm. of Hg.

From the figure 1, it is seen that the gases with which we are concerned vary within very wide limits in their solubility in water and tissue fluids. Their solubility in tissue fluids determines to a large

measure the channel through which they are discarded by the body.

Attention has been called to the fact that these gases may come from five sources. They may be discarded in one or more of four ways. Those which are relatively insoluble are discarded either as belched gas or as flatus. They have no other means of escape. Nitrogen is by far the most important one of this group of gases, although hydrogen, methane and carbon monoxide are usually mentioned in this connection. The soluble group of gases is made up practically entirely of carbon dioxide, for hydrogen sulphide plays a very small part in bowel distention. These soluble gases may escape in solution in the feces, the vomitus or even in the sweat and urine, but their principle egress is through

the blood and the lungs. This is an important consideration.

The partial pressure of oxygen is usually recorded in mm. of Hg. and has been studied extensively by many noted physiologists. The partial pressure of oxygen in the air is usually given as 158 and that of the alveolar air as 106. Arterial blood⁴ in man has an oxygen pressure of 100, while tissue spaces have been shown to have a pressure of from 40 to 53 and never more than 60. Within the cells themselves the oxygen pressure undoubtedly drops below 40, although it probably never even approaches 0 at any time. On the other hand, it has been shown that there is often a total absence of oxygen within the lumen of the bowel, due, it is thought, to the fact that metabolism in the bowel wall as well as the fermentative and putrefactive processes which are taking place in its lumen are using the oxygen as fast as it is delivered (fig. 2).

The partial pressure of carbon dioxide contrasts rather strikingly with that of oxygen. In the atmosphere it is almost nil. In the alveoli it reaches and tends to maintain a pressure of 40, while in the venous blood its pressure is about 46. In the tissue spaces, however, the partial pressure of carbon dioxide is always somewhat above 46 and investigators have found that it maintains about the same level in the general peritoneal cavity. In the cells, however, and particularly in those of an especially active part of the body, this pressure ranges above 46 and may go up to 60. Just as the oxygen pressure within the lumen of the bowel is known to be the lowest found anywhere in the body, so the carbon dioxide pressure theoretically should be the highest there (fig. 3).

Fries⁵ analyzed the flatus of a normal individual and found that it was made up of carbon dioxide 10.3 per cent, oxygen 0.7 per cent, methane 29.6 per cent, and nitrogen 59.4 per cent. A number of students have studied the flatus obtained from pathologic bowels. Basch⁶ studied those gases from a chronic colitis case and found that there was 3.8 per cent carbon dioxide, 8.4 per cent oxygen, 2.6 per cent methane, 4.4 per cent hydrogen and 80.8 per cent nitrogen. It will be seen that almost 88

per cent of these two specimens is made up of hydrogen, methane and nitrogen. These are the three gases which do not readily go into solution in the tissue fluids and for that reason they must be discarded as belched gas or as flatus (fig. 4).

Certain conditions tend to increase the partial pressure of carbon dioxide in cells, tissue spaces and the lumen of the intestine. It is known that carbon dioxide is produced when smooth or striated muscles work. It is one of the two important by-products of the combustion of glycogen. The harder a muscle works the more carbon dioxide there will be in its cells and tissue spaces. Infection and the rise in temperature which results increases the metabolic rate, whips up fermentation and putrefaction and in this way increases the quantity of carbon dioxide.⁷ Lastly and perhaps most important as far as bowel distention from gas is concerned, circulatory interference, particularly venous obstruction and edema, causes a definite and pronounced rise in the partial pressure of carbon dioxide in the venous blood. From the venous blood this carbon dioxide backs up into the tissue spaces and cells, and, as we have shown, the general peritoneal cavity and the lumen of the bowel reflect the partial pressure of gas in the cells and tissue spaces (fig. 5).

Reference has been made to ingested air as a source of nitrogen in the intestine. It probably is not the only important source of this gas in pathologic conditions, however. Nitrogen in these abnormal conditions is found in much greater quantities than it is in the healthy individual. Much of this nitrogen comes from the blood.

Attention has been called to the fact that the partial pressure of nitrogen in atmospheric air is about 595 mm. of Hg. McIver and others have shown that these figures just about represent the partial pressure of this gas in the blood. It will be shown later that the intestinal musculature normally maintains an irregular but positive pressure within its lumen and under certain pathologic conditions this pressure is much reduced. It is this reduction of pressure within the lumen of the intestine which is responsible for the deposit of nitrogen from the circulating blood in the bowels. Intestinal atony of this character may be myogenic or neurogenic in origin. Its myogenic origin will be discussed later. Its neurogenic origin is explained by assuming that there has been some irritation of the sympathetic nervous system which is inhibitory in effect. Its neurogenic origin is further attested by

4. Campbell, J. A.: Gas Tensions in Tissues; *Physiol. Rev.*, 11:1-40, Jan., 1931. Prolonged Alteration of Oxygen Pressure in Inspired Air with Special Reference to Tissue Tension, Tissue Carbon Dioxide Tension, and Hemoglobin; *J. Physiol.*, 62:211-231, Jan., 1927. Changes in Tension of Carbon Dioxide and Oxygen in Gases Injected Under the Skin and into the Abdominal Cavity; *J. Physiol.*, 59:1-16, Aug., 1924.

5. Fries, J. A.: Intestinal Gases of Man. *Am. J. Physiol.*, 16:468-474, 1906.

6. Basch, S.: The Stomach and Intestinal Gases; with Description of Apparatus for Their Collection and Analysis. *N. Y. M. J.*, 88:684-738, 1908.

7. Boycott, A. E.: Observations on the Gaseous Metabolism of the Small Intestine of the Rabbit. *J. Physiol.*, 32:343.

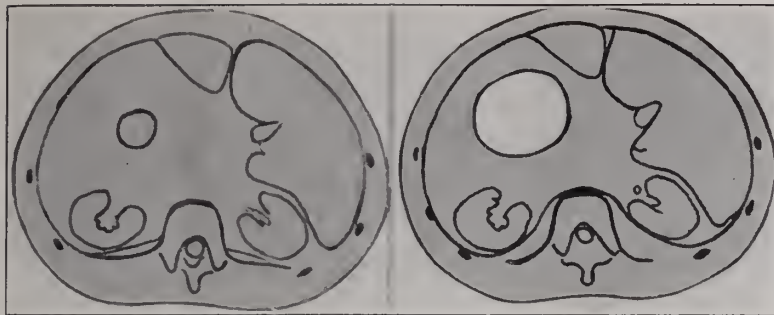


Fig. 6

Fig. 7

Fig. 6. Schematic drawing showing all body fluids and the lumen of the intestine saturated with nitrogen under a partial pressure which is determined by that in the atmosphere.

Fig. 7. Schematic drawing showing an atonic bowel with a partial pressure of nitrogen within its lumen which is less than that in the body fluids which are saturated under a partial pressure represented by that of nitrogen in the atmosphere. This condition allows nitrogen to pass from the body fluids into the intestine until equilibrium is restored.

the fact that in certain cord diseases, such as trauma, syringomyelia and combined sclerosis, meteorism is encountered and is explained best by assuming that the normal balance between the sympathetics, which are inhibitory in their tendencies and the parasympathetics which are excitatory in their general effect, has been disturbed (fig. 6).

At any rate muscle relaxation is induced; pressure within the intestine is reduced and the nitrogen which is in the blood under a high partial pressure (595 mm. of Hg.) diffuses from the blood into the intestinal canal. Oxygen and carbon dioxide do not do this in any appreciable degree because they are in chemical combination in the blood. Alvarez has pointed out that the chief feature of interest in this connection is that, when nitrogen is diffused into the bowel in this way, it is not apt to be reabsorbed for it diffuses very slowly and the blood and the tissues are already saturated with it. The process is not unlike that which causes what is usually referred to as "the bends" in divers, or caisson-disease. It is generally known that the symptoms in this disease follow a too rapid decompression of the patient, with a resulting evolution of gases, particularly nitrogen through the blood and the body tissues. Erdman⁸ had a fatal case of caisson-disease, in which he found that 80 per cent of the gas he recovered from the heart was nitrogen and 20 per cent was carbon dioxide (fig. 7).

FLUID IN THE BOWEL

It is generally recognized that, when the small bowel becomes distended, fluid plays a large part in the process. This is true in pneumonia, nephritis

and cardiac disease. It is true in peritonitis, intestinal obstruction, paralytic ileus and even in acute dilatation of the stomach. It is also true that, when dilatation finally develops in any of these diseases, vomiting of a persistent and protracted character usually accompanies it. It is a paradoxical condition. These patients take nothing by mouth; they vomit repeat-

edly and yet the distention continues to increase. On examination in the operating room or in the morgue the small bowel is found filled with fluid. And, as if nature conspired to make the paradox as perplexing as possible, the examiner invariably finds that the distention in the small bowel is greatest at the upper end and grows less as the cecal end is approached.

It would be presumptuous for me or for any clinician to attempt to explain such a phenomenon. Science is not equal to it. However, a useful and a very interesting insight into this problem can be obtained by approaching it from the field of physiology.

It has been shown by Wells⁹ and other physiologists that the rate with which the small bowel absorbs solutions varies directly with the pressure which is exerted on them. The greater the pressure applied to the solution, the more rapidly it is absorbed. He was also able to show that this pressure may be lowered, so that it is considerably less than that of the atmosphere, before absorption from the intestine ceases. The negative pressure, which was found to be just sufficient to abolish absorption, has been demonstrated to be constant for each animal. What is just as significant, this negative pressure has been found to be roughly equal to the colloid osmotic pressure of the blood plasma or lymph of the animal, a finding which is quite in keeping with an hypothesis advanced many years ago by Starling to the effect that the colloid osmotic pressure of the blood plasma or lymph in the villi of the bowel may be responsible for the absorption of fluids from the intestine.

It has been known for a long time and repeatedly emphasized by Alvarez¹⁰ that there are a number of gradients in the small bowel. The upper end is more irritable, has heavier musculature, a more rapid and powerful peristalsis and a more

8. Erdman, S.: The Acute Effects of Caisson Disease or Aeropathy; *Am. J. Med. Sc.*, 145:520-526, April, 1913. Aeropathy or Compressed Air Illness Among Tunnel Workers; *J. A. M. A.*, 49:1665-1670, Nov. 16, 1907.

9. Wells, H. S.: Relation Between Intraintestinal Pressure and Rate of Absorption of Water. *Am. J. Physiol.*, 99:209-220, Dec., 1931.

10. Alvarez, W. C.: *The Mechanics of the Digestive Tract*. 2nd Ed., Paul B. Hoeber, New York, 1928.

rapid metabolism than the lower. Every surgeon knows that the blood supply to the proximal end of the small bowel is more generous than it is to the distal part. And, while it may not be stated with equal certainty, it seems quite in keeping with facts to suppose that the muscles of the small intestine maintain an irregular but positive pressure within its lumen.

This positive pressure, if the work of Wells which I have quoted is reliable, should be a factor in facilitating the absorption of fluids from the small intestine. In other words, as long as the tone of the muscle of the small bowel is maintained, distention does not occur, partly because the content of the bowel is passed down the tract and partly because absorption is maintained by sustained intraintestinal pressure. Such an hypothesis immediately confronts us with the question of what pathologic physiology can induce a loss of tone in these muscles. Fortunately, we have rather reliable evidence bearing on that point.

Smooth muscle like any other muscle consumes glycogen and produces carbon dioxide and lactic acid. A large part of this lactic acid is converted back into glycogen, if the oxygen supply to the muscle is adequate. However, if oxygen is not provided in sufficient quantity, the glycogen content of the bowel muscle is rapidly exhausted and then these muscles become fatigued, and when they are fatigued they relax. If carbon dioxide is not removed as rapidly as it should be, there is a disturbance in the function of the muscle. This relaxation immediately reduces the intraintestinal pressure and at the same time paralyzes the only means the intestine has by which it can move its contents towards the rectum. It would seem, then, that we have a circulatory cause of bowel atony as well as the neurogenic one which has already been discussed. A lowered pressure in the lumen of the intestinal canal is the end result of either of them.

At this time I wish to bring to your attention an observation which in a practical way has entirely escaped the attention of clinicians. I refer to bowel edema. Edema is usually defined as a condition in which there is an increased amount of interstitial fluid. Fishberg¹¹ and other students of it, feel that the primary causes tending to edema formation all fall under three headings: (1) decreased osmotic pressure, (2) increased permeability of capillaries, and (3) increased capillary blood pressure.

Bowel edema can be demonstrated to be an

accompaniment of a large number if not all of the clinical conditions which are complicated in any appreciable degree by bowel distention. The patient with a decompensated heart or pneumonia, who becomes distended, does so only after the anoxemia produced by the primary disease has induced an increased permeability¹² of the capillary bed and the obstruction to venous return has increased the capillary blood pressure in the bowel wall.

The same process is probably back of the ascites and bowel edema accompanying cirrhosis of the liver. The nephritic developing meteorism, with diarrhea and vomiting in the eleventh hour of his disease, does so probably because his bowel has finally become edematous. In peritonitis distention comes only after infection has caused a local passive congestion, as Menkin¹³ has shown, and an edema which involves the more central layers of the small intestine. The mechanism at work in producing distention in intestinal obstruction, however, is not quite the same although in it, too, edema plays a major role.

The loop in intestinal obstruction, in which the arterial flow is cut off, probably rarely if ever becomes distended. This is illustrated nicely in figure 8. It has been a constant finding with us. On the other hand, loops in which the venous flow is reduced or entirely cut off distend rapidly. Wangeensteen¹⁴ found that animals in which this kind of circulatory disturbance was produced live less than one-fourth as long as those in which he produced simply a fecal obstruction or an obstruction to arterial blood flow as well as fecal flow. Our experience with rabbits is in keeping with these findings. Incidentally the rapid distention which always results, when the veins to a loop of intestine are ligated, throws some light on the fact that we notice such a rapid and pronounced distention so early in many cases of mesenteric thrombosis. When the venous flow is reduced or completely cut off to a loop of intestine, edema or even frank hemorrhage is certain to result.

If we analyze the distention which occurs in the gut proximal to a strangulation or proximal to a

12. Landis, E. M.: The Capillary Blood Pressure in Mammalian Mesentery as Determined by the Microinjection Method; *Am. J. Physiol.*, 93:353-362, May, 1930. The Relation Between Capillary Pressure and the Rate at Which Fluid Passes Through the Walls of Single Capillaries; *Am. J. Physiol.*, 82:217-238, Sept., 1927. Effect of Lack of Oxygen on the Permeability of the Capillary Wall to Fluid and Plasma Proteins; *Am. J. Physiol.*, 83:528-542, Jan., 1928.

13. Menkin, V.: Studies on Inflammation; *J. Exper. Med.*, 50:171-180, July, 1929; *ibid.*, 53:171-177, Jan., 1931; *ibid.*, 53:179-183, Jan., 1931.

14. Scott, H. G. and Wangeensteen, O. H.: Length of Life Following Various Types of Strangulation Obstruction in Dogs. *Proc. Soc. Exper. Biol. & Med.*, 29:424-427, Jan., 1932.

11. Fishberg, A. M.: *Hypertension and Nephritis*. Lea & Febiger, Philadelphia, 1930.

mechanical obstruction to fecal flow, whatever its cause, we will find that edema of the bowel is an important factor. In these cases the block to fecal flow induces a hypermotility and the bowel drives itself to muscular exhaustion in its effort to overcome the obstruction. And, as already shown, when these muscles become exhausted they relax. This relaxation must reduce the intraintestinal pressure and to that extent must reduce the rate of absorption from the involved bowel. The increased blood flow which always accompanies excessive muscular effort increases intestinal secretion and eventually distends the bowel till there is a partial or a complete collapse¹⁵ of the veins in its wall. Bowel edema results.

Apparently a process quite similar to this is at work in acute dilatation of the stomach. The microphotograph (fig. 9), made from the intestine of a man of forty who died of acute dilatation of the stomach following an operation for a simple inguinal hernia, bears out this point. These sections show a marked edema in the higher parts of the small bowel and relatively little in the caudal end. Dr. Robertson, pathologist St. Vincent's Hospital, Portland, secured this material for me. At the time of the autopsy a small amount of free fluid was found in the peritoneal cavity but there was no evidence of peritonitis. The small bowel was greatly dilated high up and tapered down to a normal caliber near the cecum.

Edema probably handicaps the bowel in various ways. In any muscle edema splints it and makes it incapable of working. It probably splints the bowel musculature, makes peristalsis impossible and adds to the distention as a result. But granting that edema does occur in many if not most of the conditions in which bowel distention is found, that fact does not determine whether this is a cause rather than an effect of the distention. Evidence is available, however, which seems to have some bearing on this point. Mention has already been made of the fact that there are certain gradients in the intestinal tract but the gradient in the secretory rate of the small bowel has yet to be discussed. The rate with which fluid is produced in the upper part of the small bowel is greater than it is in the lower. But the gradient to which I wish to call special attention is that of absorption. This gradient is unique in that, unlike all the others mentioned, it increases in rate as the lower end of the bowel is approached. This is an important concept.

15. Dragstedt, C. A., Lang, V. F. and Millet, R. F.: Relative Effects of Distention on Different Portions of the Intestine. *Arch. Surg.*, 18:2257-2263, June, 1929.

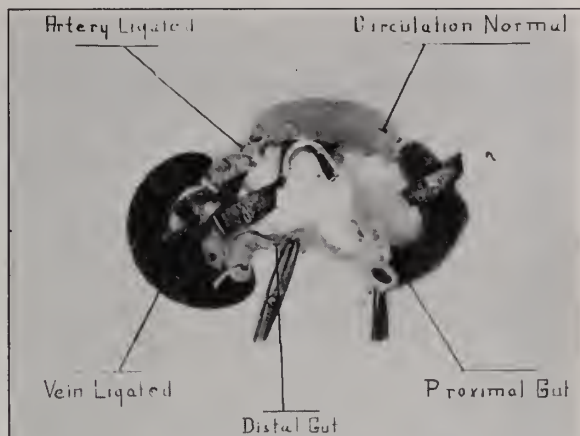


FIG. VIII

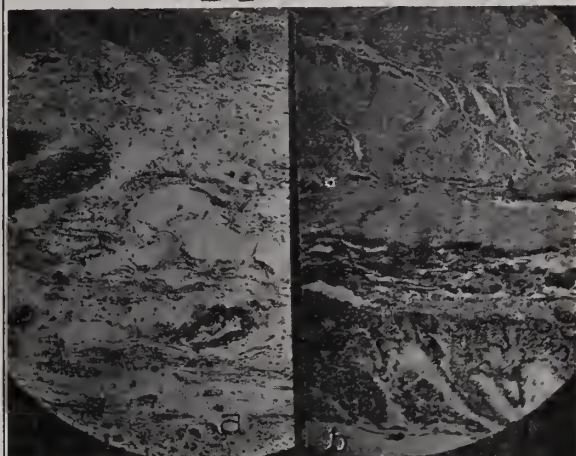


FIG. IX

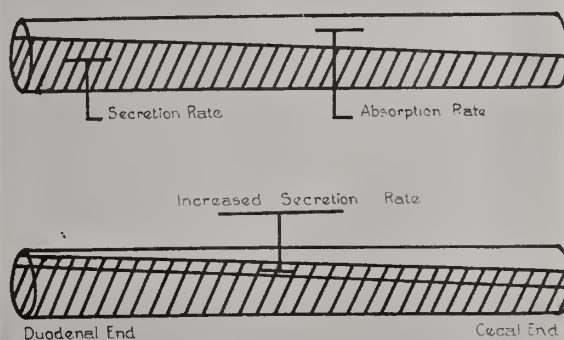


FIG. X

Fig. 8. A series of obstructed loops in the intestine of a rabbit showing the effect of various forms of circulatory interference.

Fig. 9. Microphotograph showing a more marked edema in the muscles of the (a) jejunum than there is in those of the (b) ileum of a patient who died of acute dilatation of the stomach.

Fig. 10. Schematic drawing showing how an increased rate of secretion accompanied by a decreased rate of absorption must result in distention and why that distention is more rapid if the obstruction is high than it is if it is in the lower part of the bowel.

Physiologists have known for a long time that obstruction to the venous blood of the bowel will cause a very pronounced increase in the rate of

production of intestinal secretions. This can be nicely shown by constricting the superior mesenteric vein. Wells and others have been able to demonstrate that the rate of absorption from the intestine is materially reduced by this same process. And let us not forget that this process is one which produces edema. The application of these facts can be made clear by a schematic drawing.

In figure 10 it is assumed that the rate of secretion is equal to or greater than that of absorption. Under such conditions, even though all other processes were unaltered, distention or diarrhea would necessarily result. If, however, edema of this organ increases the rate of secretion and decreases the rate of absorption and at the same time splints the bowel and makes it incapable of propulsive peristalsis. Then a condition will exist which can be represented by part B of figure 10. Under such conditions no matter where the obstruction occurs, secretion will always be in excess of absorption and distention will be rapid.

CONCLUSIONS

The evidence submitted is capable of a very practical interpretation. The tone of the muscles of the intestinal wall may be lost because of the inhibitory action of the sympathetic nervous system, or because the muscles have become fatigued. They tire because of overwork, undernourishment or because they are poisoned. As a result of fatigue they relax and reduce the normal positive pressure within the lumen of the intestine. This reduced pressure allows nitrogen to diffuse into the intestinal lumen from the blood, where its partial pressure is very high. Once it has entered the intestine it can not escape unless it is belched or passed as flatus. This reduced pressure also increases intestinal secretion and reduces the rate of intestinal absorption. As a result, gas and fluid collect in the bowel and distend it until there is a collapse of the veins in its wall. This impeded venous return brings about an edema of the intestinal wall, if edema has not already been produced by local infection or by systemic disease. Edema splints the bowel, causes an increase in the nitrogen deposited from the blood, and prevents the normal escape of the carbon dioxide which is formed from bacterial and chemical action in the intestine and from local metabolism. It reduces the rate of absorption from the intestinal canal and materially increases the rate of production of intestinal secretions. Bowel distention is the consequence and it is due practically entirely to the intestinal secretions and to two gases, nitrogen and carbon dioxide.

HISTORY OF MULTNOMAH COUNTY MEDICAL SOCIETY *

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The first step in organizing the Portland Medical Society was taken June 10, 1884, by the assembling of seventeen physicians of Portland to discuss the matter. The minutes of the meeting describe the proceedings very succinctly and may be quoted: "Pursuant to invitation of Dr. W. H. Saylor, the physicians of Portland convened at the office of Dr. G. M. Wells, June 10, 1884. Present: Drs. A. D. Bevan, O. S. Binswanger, F. B. Eaton, E. P. Fraser, Wm. Jones, S. E. Josephi, H. Lane, K. A. (J.) MacKenzie, W. H. Saylor, C. C. Strong, G. M. Wells, (J. F.) Watt, C. H. Wheeler, H. C. Wilson, W. H. Watkins, W. B. Watkins, and H. C. Smith. Dr. S. E. Josephi being called to the chair, called the meeting to order at 8:15 p.m. On motion, Dr. E. P. Fraser was elected Secretary. Dr. W. H. Saylor then stated the object of the meeting to be the organization of a county or city medical society. On motion of Dr. Strong this was declared to be the desire of the meeting. Dr. Fraser then presented to the meeting a series of By-Laws for the government of a medical society, which on motion was referred to special Committee composed of Drs. H. C. Wilson, W. H. Saylor and C. C. Strong with instructions to report at the next meeting. Dr. Bevan moved that the committee on By-Laws be instructed to incorporate a clause which would exclude female physicians from membership in the proposed society. The motion was carried. Dr. Watkins moved that the committee be instructed to name the society, 'The Portland Academy of Medicine.' After some discussion the motion was so amended as to leave the matter to the discretion of the Committee."

After several preliminary meetings a constitution and By-Laws were adopted on June 24, signed by twenty members, but four others, not present at this meeting, were also regarded as charter members (fig. 1). Dr. S. E. Josephi was elected the first president of the Society and Dr. O. S. Binswanger was the first secretary of the completed organization (figs. 2, 3). Dr. Holt C. Wilson was elected First Vice-president and Dr. G. M. Wells as Second Vice-president.

* Read at the Fiftieth Anniversary of the Founding of Multnomah County Medical Society, Portland, Ore., May 16, 1934.

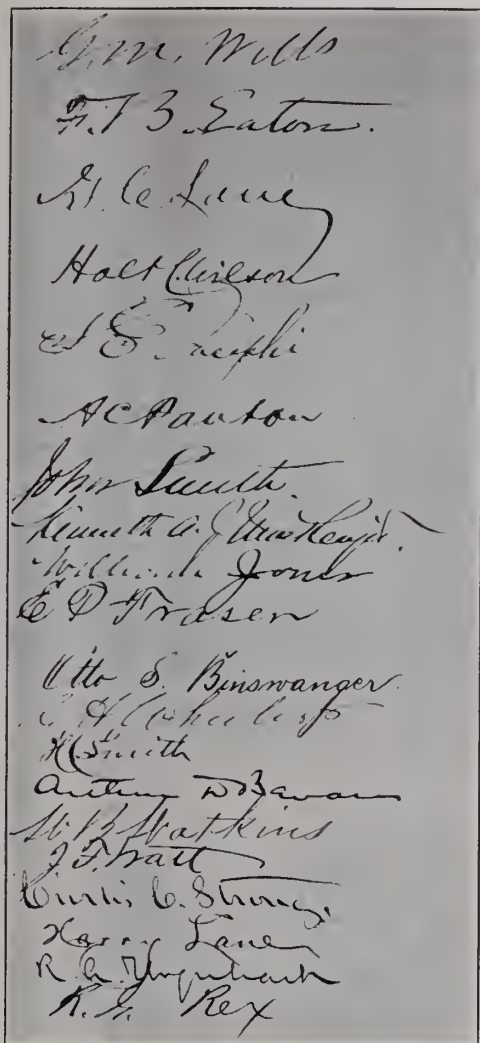


Fig. 1. Signatures of charter members of the society.

The organization immediately became active and on July 1 the first medical paper was presented by Dr. K. A. J. MacKenzie, "On the History, Symptoms and Treatment and Postmortem Appearances of a Case of Perityphlitis." The account goes on to state that on invitation of the president, Dr. A. D. Bevan opened the discussion of the paper. The society was thus launched on its career and began the period of useful service of which we celebrate the half-century mark tonight.

A glimpse of the city in which these men lived and worked may be of interest. Portland in 1884 had a population of about 28,000. There were no bridges across the river, the first of these having been built in 1887. The streets for the most part were unpaved and were flanked with board sidewalks. While it was a shipping center then as now, the bar at the mouth of the Columbia was a serious hindrance to navigation.

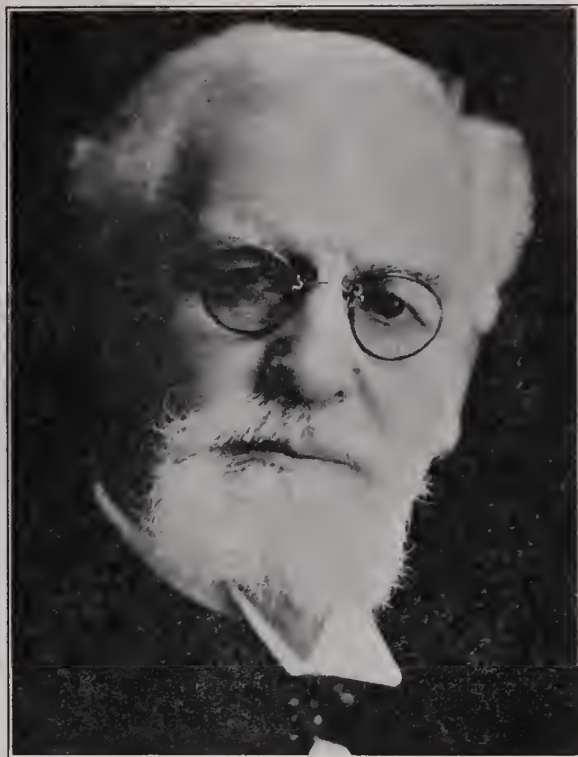


Fig. 2. Dr. S. E. Josephi, first president of the society, a recent photograph.

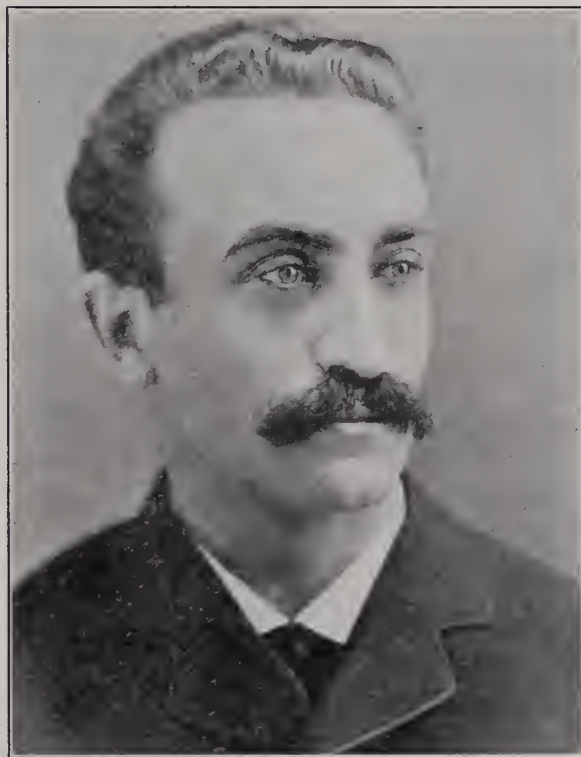


Fig. 3. Dr. Otto S. Binswanger, first secretary of the society, taken about 1882.

In addition to the medical men included in the list of charter members of the Society, there were



Fig. 4. Some early members of the society, taken about 1891. From left to right: Henry Jones, E. F. Tucker, A. C. Smith, J. F. Dickson, K. A. J. MacKenzie, Wm. Jones, A. D. MacKenzie, J. M. Kane, J. F. Bell, A. D. Bevan.

a number of others in practice, some of them not too well trained. The Society, however, included men of excellent training, from the best American and Canadian schools of the time, and some had studied in Europe. Others were trained locally or at other frontier American schools, but their personal calibre appears to have been excellent (fig. 4). As an example of the type of men and their calibre may be cited Dr. MacKenzie's study of an epidemic of typhoid fever in 1889. It will be recalled that the cause of typhoid fever had been discovered in 1884 but its manner of distribution was not so well understood. As an epidemiologic study the following is of interest:

Portland, Oregon, June 21, 1889.

Dr. MacKenzie presented for discussion the recent epidemic of typhoid fever. The abruptness of the outbreak caused him to investigate its source.

There being no efficient Board of Health to refer such cases to for investigation, the doctor upon his own inquiry concluded from the peculiarity of the attack in certain families that the food supply might be the cause of the epidemic. His attention was given to the milk supply, and to his surprise he found that in nearly every instance where the disease existed the supply of milk was derived from one source, that being a dairy near the city, where the gentleman owning said dairy together with his wife, had only a short time previously suffered from typhoid fever.

It was also ascertained that dejecta of these two patients was thrown without any attempt at disinfection into an adjacent creek, the creek running through a pasture frequented by the cows of this dairy. The doctor's conclusions were that the cows had imbibed the fever germs and given them off through the milk, or the source of the water supply used by the dairy man for cleansing the milk cans had

become poisoned by germs of the disease, thus contaminating the milk distributed by him.

The incidents which led to an investigation of the epidemic were as follows. In one family five people who were in the habit of drinking cold milk were attacked, while others of the same family who did not drink the milk were exempt from the disease.

Another instance was the removal of a man and his wife from a boarding house to housekeeping apartments ordering this same milk delivered to them. Both were attacked with typhoid, and in various boarding houses where this milk was used many cases occurred; in one, ten cases and another six or eight cases.

Upon board of a ship lying at Weidler's mill the captain and his wife were using milk from this same source, while the officers and crew were using condensed milk. The two former were attacked and the latter exempted. All of these cases appeared synchronously. The doctor could cite many other cases in evidence as to the source of contagion. But he hoped that the Society would take this as an initiative to institute proceedings to arouse the authorities, to take steps to improve the sanitary condition of the city.

The titles of some of the early papers are of interest. As one reads the minutes, wonderfully well kept in the early years by Dr. Binswanger and in later years by others equally careful, one can form a picture of the medical practice of the time. The abstracts of the papers from 1884 to about 1905 give a history of the developments in medicine during this important period. On August 5, 1884, Dr. Wilson read, as the second paper presented to the Society, a discussion of "Can a Diagnosis between Chancre and Chancroid be Made?" In 1889 Dr. A. E. McKay came to Portland just out of McGill Medical School, with the virus of the new learning

on bacteria in his system. Energetic and enthusiastic, he gave a great stimulus to medical progress in Portland in this direction. On November 6, 1895, it is recorded, he read a paper on the "Cause and Treatment of Specific Urethritis in the Male," with opportunity to members of the society to view Niesser's gonococcus through a high-power lens.

Surgery received its due. On May 1, 1895, Dr. A. C. Smith, who had joined the Society in 1892, reported the case of a boy who had swallowed a glass of lye, causing stenosis of the esophagus which could not be opened from above. He stated that he was considering a gastric fistula for the purpose of attempting to open the esophagus from below. In this he was subsequently successful. On October 3, 1900, the minutes indicate that Dr. Josephi read a paper on "The Neuron, What Is It?", thus showing the result in Portland of the studies on the nervous system made by anatomists in Spain, Italy, Germany and Sweden. Some of the cases discussed were bizarre rather than scientific, but are of interest; e.g., Dr. H. C. Fenton, on February 20, 1901, reported a case of larvae of blow-fly moved from the nasal cavity.

In June 1902, the constitution was changed to "widen the scope of the Society," and the name was changed to "City and County Medical Society." Provision was made for membership of "regular lady practitioners," and on February 18, 1903, the following women were elected to membership: Drs. Gertrude French, Kittie P. Grey, Esther C. Pohl, Ethel L. Gray, Edna D. Timms, Elsie D. Patton, Sarah Whiteside, Jessie M. McGavin, Eugenie Little, Amelia Ziegler, Sara M. Hill.

In 1903 attempts were begun to establish a district medical library. On April 28 subscriptions of \$10 each were obtained from thirty members. After a checkered career, during which the books were housed in various places, including the Portland Library, the library which had grown in the meantime, was finally made a part of the medical school library, in 1919, with continued support by the Society. Apparently no one was more active in bringing this about than the toastmaster of the evening, Dr. A. G. Bettman.

Another movement of considerable interest in which the society played a part, was the establishment in 1905 of the Open Air Tuberculosis Sanatorium. Perhaps the most important figure in this connection was Dr. Woods Hutchinson, since known throughout the country as a writer, who came to Oregon about 1901. In the minutes, dated March

20, 1901, it is stated that Dr. Woods Hutchinson of Newberg read a paper on "The Factors Which Predispose to Tuberculosis in Man and Animals." Later he was appointed chairman of a committee "to assist in the founding of an open air sanatorium." After many preliminary reports, this committee reported on February 1, 1905, that an institution was in working order and all details were in operation, and as the object of the committee was accomplished, it asked to be discharged.

An important event in the life of Portland was the Lewis and Clark Exposition in 1905. The City and County Medical Society took an active part in inviting the American Medical Association to meet in Portland in the summer of 1905, at the time of the exposition. The estimated attendance at this meeting was 1,500. The Society raised nearly \$7,000 for expenses and entertainment.

As new topics came up in the medical thought of the country, they are reflected in the proceedings of the Society. In 1902 the question of meat and milk inspection received much attention. The history of the Society throughout its fifty years reflects the development of medicine and medical progress. In 1895 a new State Medical Board had been established by the legislature, after much pushing by the Portland Medical Society. The city was growing and a number of young and energetic recent graduates from various schools had established themselves in the city.

In 1887 the University of Oregon Medical School had opened its doors, in addition to the older Willamette University Medical Department already in the city. In 1895 the latter had moved to Salem, but the younger school remained. Its facilities were meager, as measured by present day standards, but a group of active and well trained men centered about it. These same men were the leaders in the Medical Society.

During the first decade of the century a number of able men were added to the membership of the Society. For example, on December 4, 1905, several youngsters, named W. B. Holden, E. A. Sommers and O. B. Wight were voted into the Society. A few other names, taken at random, are those of R. C. Coffey, elected in 1900; J. Allen Gilbert, 1902; J. A. Pettit, 1903; A. W. Chance, 1904; C. T. Chamberlain, 1906; R. C. and R. W. Matson, 1905; Ralph Fenton, 1909, and many others which time does not permit to name.

About 1895 appears the first suggestion of a protective fund against suits for alleged malpractice.

Such a fund was established in March, 1896, and in November the Society rallied to the aid of one of its members who had appealed a suit to the Supreme Court, rather than compromise in a case in which the verdict had been adverse.

Attempts had been made from time to time to have times of good fellowship, also. In December, 1884, a dinner was held, and subsequently, at irregular intervals, sometimes of many years, this feature was revived. In the minutes concerning one of these events, with a program of song and remarks, the entry is made in pencil, "refreshments consisting of cigars." On a later banquet occasion in 1911, when the president of the society, Dr. A. E. Rockey, declared in his retiring speech that the time had come when the doctors of Portland should have a building owned by themselves, \$20,000 was promised in a few minutes. It has been learned, not from the minutes, that the next morning this sum began to dwindle very rapidly. The nature of the refreshments served at the banquet is not indicated in the minutes. The project of a medical building was revived from time to time, and eventually came to fruition. On February 6, 1913, a banquet was held in honor of Dr. Harry Lane, a charter member of the society, then recently elected to the United States Senate. Two hundred members attended.

During the war many of the members of the Society served overseas or in other phases of the great conflict. Their splendid record will be recounted by Dr. Ralph Fenton, and need not be dwelt upon here. The history of the Society since the war is better known to most of those present than it is to the speaker, who will close in the words of our venerable Dr. Josephi, spoken to me many years ago with reference to the beginnings of the Medical School, "you must creep before you can walk." The Portland Medical Society finished its period of creeping many years ago and has long had reason to hold up its head with pride in the consciousness not only of a firm tread but of progressive thought, a high purpose and useful service to profession and public.

UNILATERAL SUBLUXATIONS OF CERVICAL VERTEBRAE WITHOUT ASSOCIATED FRACTURE. Since January, 1929, Barbara B. Stimson and Paul C. Swenson, New York (*Journal A.M.A.*, May 4, 1935), have seen sixty-six cases of unilateral subluxation of the cervical vertebrae without associated fracture. They stress the composite picture presented by the sixty-six cases: a relatively young adult who seeks relief for stiffness and pain in the neck within twenty-four hours after a mild twist or jerk of the head and who holds his head tilted to one side and cannot bend it to the opposite side. Adequate roentgenograms are necessary for conclusive diagnosis. Treatment is relatively simple after the diagnosis has been established.

ROENTGENOSCOPY OF THE CHEST

ITS LIMITATIONS AND DANGERS

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Roentgenoscopy, more commonly called fluoroscopy, of the chest is a visualization of the shadows of the structures of the thoracic cavity as shown on a fluorescent screen, produced by roentgen rays which have passed through the body.

This type of examination has recently come into more general use for the following reasons: because of cheaper equipment and sales pressure on the part of the manufacturers, natural reluctance of some examiners to refer a patient, examiner's desire to add to his diagnostic equipment, demand by the lay public for "x-ray" examinations. The use of such equipment to retain a slight fee, or to delude the patient into believing that he has had an "x-ray" examination is deplorable. The desire to add greater diagnostic ability by means of the fluoroscope is commendable, provided the examiner has adequate training and is willing to properly examine the patient. The increasing desire and demand for roentgenologic examination by the laity is inevitable.

HISTORY

The systematic study of fluorescence was first undertaken by Sir George Gabriel Stokes of Cambridge, England, in 1852, but it was not until Roentgen's discovery of the invisible x-ray in 1895 that the two were combined in the study of human anatomy and pathology. In the early history of roentgen ray there was considerable controversy as to the relative merits of the fluoroscopic image and that as recorded on a sensitized plate. It was Thomas Edison who invented the fluoroscope. Incident to his research for a filament for incandescent lights he discovered calcium tungstate which was a much better fluorescent crystal than any previously known. His belief in the value of this discovery is shown in a telegram which he sent to Lord Kelvin in March, 1896, in which he said: "Just found calcium tungstate properly crystallized gives splendid fluorescence with roentgen rays, far exceeding platino cyanide, rendering photographs unnecessary." Later developments in both the fluorescent screen and radiographic films have proved the error of this prediction.

LIMITATIONS

Examination by the fluorescent screen has definite limitations and it is only by proper recognition of and regard for these limitations that the

examiner may do justice to the patient and himself.

Regardless of the ability of the examining physician, his visual acuity or the preliminary preparation in dilating his pupils, the soft clouding in an early tuberculous involvement of the lung and the first shadow of a metastatic nodule or any of the fine markings which are always visible in a properly processed film of the chest are not visible in the fluorescent screen.

The time allowed to study a chest by means of the roentgenoscope is restricted because of the danger of roentgen ray burns to the patient and overexposure to the physician. Prolonged use also causes a more rapid deterioration of the tube and the incident increase in the cost of maintenance. Conversely, there is no inherent limit to the time which may be used in examining a film or films of the chest.

At best, a description of the findings of a fluoroscopic examination is incomplete, inexact and does not permit of comparative findings at a later date and in this regard leaves much to be desired. A film record, however, allows a careful and detailed comparison of the shadows of previous and subsequent examinations.

TECHNIC

During the fluoroscopic examination the patient should have all clothing removed to the waist. For the sake of modesty, a starchless gown may be used. All silk, rayon or similar materials must be removed because they contain sufficient mineral matter to cast definite shadows. The patient should have a few minutes preliminary rest to allow the cardiac rate to assume its normal. To reduce the element of nervousness and apprehension, which is always present in patients who have never had roentgenoscopic examinations, they should be assured there will be no pain or electric shock.

The examining physician should be adequately protected from undue exposure to the ray. His pupils should be properly dilated and relaxed before beginning the examination. Proper dilatation requires six or seven minutes in a completely darkened room, if previous illumination has been somewhat restricted. If the physician has been in a room exposed to bright daylight or if he has been exposed to ultraviolet or intense artificial light, ten to fifteen minutes are required. Many times a preliminary period of apparent dilation of the pupils may occur, followed shortly by another period of blurred and indistinct vision, after which there will be perfect relaxation and best possible vision. The

practice of some physicians in making the usual physical examination in a brightly lighted room and then taking the patient into the fluoroscopic room for immediate roentgenoscopic examination cannot be condemned too heartily, and he is either deluding himself or deliberately deceiving the patient.

The third factor in the technic of examination is that the examiner should have the proper foundation of experience and training that he may be able to recognize normal shadows and thereby detect the abnormal. Interpretation of the abnormal shadows requires not only experience but also an association of reasoning and the knowledge of pathology and its physical effects on the tissues. Obviously, a license to practice medicine and surgery does not confer an ability to interpret roentgenoscopic shadows any more than it qualifies one in any other field of medicine requiring special training.

CONCLUSIONS

The roentgenoscopic examination of the chest is a recognized and desirable method of determining pathology but it should be used in connection with radiography. Positive findings in the lung tissues are valuable and often diagnostic. It cannot be overemphasized that negative findings are valueless. A diagnosis made from negative findings in a roentgenoscopic study alone must be considered poor practice. Proper training and experience are essential for roentgenoscopic diagnosis, the dangers and limitations of which should be recognized and observed.

443 Stimson Building.

NEW CURE FOR STUBBORN WOUNDS RESULTS FROM CLUE GIVEN BY FLY

From a clue provided by an insect, entomologists of the U. S. Department of Agriculture have discovered a new way to heal stubborn wounds quickly, painlessly and cheaply. The new treatment is the application of a solution of allantoin, a bland, odorless, harmless, and easily obtained product found in both insects and plants. The insect that gave the clue to this discovery is one of the flies, in the maggot stage, that gained fame as a medical aid on World War battle fields, where an Army doctor found that wounds infested with maggots healed better and faster than wounds without them. Since then surgeons all over the world have used maggots in treating deep infections difficult to cure by ordinary surgery.

Government entomologists, who have developed methods for rearing and shipping sterile maggots to hospitals, have at the same time sought the secret of this maggot's power to heal. Dr. William Robinson, of the Bureau of Entomology and Plant Quarantine, now finds that allantoin, which is given off by the maggots as they work their way through a wound, is responsible for part of this power. Allantoin, Dr. Robinson says, is not a new discovery. Dr. C. J. Macalister, who used it successfully twenty-three years ago for ulcers, reported that European peasants had long applied the roots of comfrey, which contain allantoin, to sores.

NORTHWEST MEDICINE

The Journal of the State Medical Associations of
Oregon, Washington and Idaho

Devoted to the Interests of the Medical Profession
of the Pacific Northwest

Editorial Office, 543 Stimson Building, Seattle, Wash.

JUNE, 1935

EDITORIAL

UNIVERSITY OF WASHINGTON LECTURES

The only effort put forth by the University of Washington for medical instruction is represented in the annual graduate medical lectures and clinics which will again be presented in Guggenheim Hall on the University campus for five days, July 15-19. The experience of the past has demonstrated to those who have taken advantage of this course that it represents a plan of systematic instruction in definite medical branches by men who are authorities in their specialties. This year the faculty consists of Prof. Arthur E. Hertzler, surgery; Prof. Oliver H. P. Pepper, medicine; Prof. P. J. Hanzlik, pharmacology, and Dr. R. S. Ferguson, urology. The subjects presented by each lecturer will be found on page 8 of this issue, reference to which will indicate the range of topics which will be considered during the week. Each afternoon will be devoted to clinics at King County Hospital, conducted by different members of the faculty. Also evening meetings will be held, when addresses on timely topics will be presented by members of the University faculty. This course of lectures has always been well supported by physicians of Washington with additions from the profession in adjacent states. It is believed that all in attendance will be rewarded by a course of profitable instruction.

THIS MONTH'S SPOKANE MEETING

The fourteenth annual meeting of Pacific Northwest Medical Association to be held in Spokane, June 27-29, will present an interesting program of lectures, the details of which will be found on page —. Special provisions will be made for the entertainment of golfers. After the close of the meeting arrangements will be made for swimming, lake and fishing parties for those wishing a trip to one of the lakes in that section. On the evening of the first day will be featured a dancing party and buffet luncheon at the Spokane Club on the banks of the beautiful little Spokane river. For the evening of the second day is scheduled the annual banquet at Davenport Hotel, where there will be more than

an ordinary and usual amount of entertainment provided. It will not, as in the past, be "a spice in with scientific lecturer" but purely a happy entertainment banquet. Entertainment for visiting ladies has been arranged under the direction of Mrs. C. W. Countryman, Mrs. Agnes Barnett, Mrs. William Pennock and Mrs. Raymond Schulte, president of the local auxiliary. Luncheons and teas, country club parties, driving and golfing parties will be provided for ladies interested in these features. A certain amount of time during the day will be set aside for those who desire resting, shopping or sightseeing in addition to stated entertainments. Some in attendance will doubtless be interested in visiting the Grand Coulee dam now under construction. Dr. Wright, head of the hospital, extends an invitation to all those in attendance to visit the dam. He will see that they are adequately provided for as far as entertainment is concerned.

DR. J. EARL ELSE

In the death of Dr. J. Earl Else of Portland the medical profession of Oregon and the Northwest has lost one of its ablest and most progressive members. Dr. Else's nature and disposition was such that he could not undertake any enterprise without putting into it his whole soul and best efforts. He possessed the spirit of the research worker which enabled him to pursue an investigation to its conclusion with the determination to obtain all possible information and record it concerning the purpose of the study. For many years he was closely connected with this journal. He contributed papers for publication on various phases of surgical investigations and practice, all of which contained information of value which was to be expected from one who attempted to offer only what had been finished as completely as possible. As a member of the editorial staff he was always helpful and ready to respond to any request for assistance or advice. He was representative of the qualities that are needed to promote the interests of the publication. Consequently his death is felt as a material loss by the editorial staff which hereby gives expression to its appreciation of him as a physician and a man of superior qualities and attainments. The journal is pleased to announce that Dr. A. J. McLean of Portland has been appointed an associate editor to fill the vacancy hereby occasioned.

MEDICAL NOTES

AMERICAN UROLOGICAL ASSOCIATION will hold its annual meeting in Palace Hotel, San Francisco, June 26-28. Prominent urologists of the United States and foreign nations will be present. Dr. Luigi Caporale of Torino, Italy, has been specially delegated by Mussolini. Among the visitors will be Dr. Aquilino Villaneuva, Secretary General of the Department of Public Health of Mexico City and Chief Urologist of the Hospital General. Among well known members of the profession of this country will be Lowler of Cleveland, Ferguson of New York, Corbus of Chicago, Howard of Denver, Crabtree and Chute of Boston, Rathbun of Brooklyn, Bugbee of New York, O'Crowley of Newark, Lowsley of New York, each of whom will present urologic papers covering the separate phases in which they have made notable contributions and for which they have a wide reputation. Hugh H. Young of Johns Hopkins University will deliver the Ramon Guiterras lecture on "The Abnormalities and Plastic Surgery of the Lower Genitourinary Tract." The association will consider the invitation extended by the French government and the Association Francaise d'Urologie to hold the 1937 meeting in Paris. This will be an exceptional opportunity for urologists of the Pacific Coast to attend the annual meeting of this organization.

GREAT NORTHERN RAILWAY SURGEON'S ASSOCIATION will hold its annual meeting at Many Glacier Hotel, Glacier Park, Mont., July 1-2. A program has been prepared with papers by surgeons from many sections connected with railroad service. These deal with fractures and injuries common to this line of practice. All practitioners interested in railroad surgery are invited to attend this meeting. The president is Dr. Douglas Corsan of Fernie, B. C.

OREGON

NEW COUNTY HOSPITAL. It is expected that Yamhill County will have either a new county hospital or the existing county farm buildings will be rebuilt for that purpose. A recent grand jury at McMinnville recommended that the county court prepare plans for such construction. It was advised that a new building be erected on the site of the present county farm buildings, if they could not be satisfactorily reconstructed for that purpose.

ADDITION TO VETERANS HOSPITAL. Washington authorities have approved the expenditure of \$20,000 for improvements in the neuropsychiatric building for general and surgical purposes in connection with the United States Veterans Hospital at Portland. Bids have been called for to cover these improvements.

WASHINGTON

HOSPITAL TO BE REOPENED. Arlington General Hospital will be reopened by July 1 as a result of its being leased to Miss Barbara Keast of Seattle, a graduate nurse with long experience in hospital management, for a period of five years. Improvements will be made in the building and modern equipment installed which will bring it up to date. Arlington has been without hospital provisions since 1932.

NEW COUNTY HEALTH OFFICER. Wallace D. Hunt of Seattle, who has served during the past two years as assistant, has been appointed county health officer for King County by county commissioners. He replaces C. L. Nixon whose term of office expired June 1.

CONTRACT AWARDED. The contract has been awarded for the new addition to be built at Rock Creek tuberculosis sanatorium at McCormick by Lewis County commissioners. The improvements will cost \$16,500, comprising a one story addition thirty-six feet square.

ADDITION TO HOSPITAL. An addition is to be built to Olympia Hospital in Bremerton at a cost of \$20,000. Plans call for an addition on the south side of the building.

HEALTH OFFICER RESIGNS. R. S. Wells, who has served as health officer for Colville for the past ten years, resigned from office last month, stating that professional duties made it impossible for him longer to continue in that office. His successor has not been appointed.

WHATCOM COUNTY MEDICAL SOCIETY enjoyed a banquet with the Woman's Auxiliary to the society at Bellingham Hotel, May 6. Addresses were made by Frank Clancy, Joel W. Baker and Miss Helen Wilcox of Seattle.

GAIL E. WILSON of Seattle has been appointed county autopsy surgeon by Coroner O. H. Mittelstadt. He succeeds Victor Cefalu, who has acted in that capacity since the first of the year.

FREDERICK B. EXNER, who has practiced for several years in Bellingham, has located in Seattle. He has been appointed roentgenologist to Columbus Hospital.

FREDERICK WRIGHT, chief of the reception service at American Lake Hospital, has left the institution, having been promoted to the position of clinical director at Veterans' Administration Facility, Coatesville, Pa.

C. K. OSBORNE, who has practiced for many years at Starbuck, has located for practice at Dayton.

IDAHO

NEW HOSPITAL PLANNED. A mass meeting was held at Emmett May 2 to discuss plans for the construction of a county hospital. The board of county commissioners, Drs. Reynold, Carver and Cummings with Mayor Buckrum, were appointed to promote the project.

APPOINTED CITY PHYSICIAN. S. W. Forney of Boise was last month appointed city physician by the mayor. He succeeds E. T. Biwer, resigned.

OBITUARIES

DR. JOHN EARL ELSE of Portland, Ore., died May 3, aged 56 years, after two years illness. He was born in 1878 in Portage County, Wis. During his boyhood he moved with his family to Dakota territory. After attending schools in South Dakota, he graduated from the pharmacy department of the State University, receiving the degree of B.S. He obtained his medical degree in 1905 from Medical Department of Northwestern University. For eighteen months he served as interne in Cook County Hospital, then located for practice in Pullman, Wash. He remained there for four years, locating in Portland in 1913 after spending some time in postgraduate study at Vienna and Berlin. He specialized in surgery, being appointed assistant to the surgical staff of the medical school. During the past eight years he was head of the Department of Surgery, being emeritus professor at the time of his death. He was an earnest student, enthusiastic in research work and has left his mark on medical progress both in the city of Portland and in the

state. He possessed unbounded energy which he displayed enthusiastically in many enterprises in which he was concerned. His loss will be deeply felt by the Oregon profession.

DR. JAMES PHILLIPPE TAMIESIE of Portland, Ore., died April 29, aged 73 years. He was born at Marion, Iowa, in 1861. He obtained his medical degree from University of Oregon Medical School as a member of its first graduating class in 1889, after its organization as part of the University. He practiced for many years at Hillsboro before locating in Portland. In recent years he has made a specialty of diagnosis. He was a well known physician and held in high respect by the medical profession as well as the general public.

DR. EDWIN L. KIMBALL of Spokane, Wash., died May 17, after an illness of several years, aged 83 years. He was born at Biddiford, Me., in 1851. He graduated from Medical Department of University of Michigan in 1875. For a time he was assistant to the president of the University. Later he was surgeon for Michigan Central Railroad. He located in Spokane in 1893. He served a term as coroner. He was active in all medical organizations and was officially connected with several life insurance companies. He made special study of psychiatry. His pleasing personality and medical experience made many firm friends among the medical profession and the laity.

DR. ARTHUR S. AUSTIN of Aberdeen, Wash., died May 11, following a long illness, aged 72 years. He was born in Argentine, Mich., in 1862. He obtained his medical degree from Wayne University College of Medicine, Detroit, in 1886. He practiced for a time with his father at Fowlerville, Mich., and located in Aberdeen in 1903. There being no hospital facilities available, he opened Grays Harbor Hospital. During his thirty-two years in the city he was active not only in medical but in civic affairs. His death is a loss to many medical and lay friends.

DR. GEORGE W. MCCRARY of Seattle, Wash., died May 6, after an illness of many months, aged 48 years. He obtained his medical degree from Chicago College of Medicine and Surgery in 1917. He served as surgeon during the World War and later was surgeon at Cushman Hospital in Tacoma. He located for practice in Seattle in 1923.

REPORTS OF SOCIETY MEETINGS

OREGON

PACIFIC COAST OTO-OPHTHALMOLOGICAL SOCIETY

The twenty-third annual meeting of Pacific Coast Oto-Ophthalmological Society convened in Portland, May 20, at Hotel Benson. After a scientific session lasting the first morning, a golf met filled the afternoon, followed by a dinner-dance at the University Club. On Tuesday morning sixteen instructional courses, patterned after those of the American Academy of Ophthalmology and Oto-Laryngology were in session. They proved a success and next year will find an extension of this activity of the society. The afternoon was marked by the address of C. S. O'Brien, M.D., head of the Department of Ophthalmology of the University of Iowa and honor guest. His subject was "Ocular Tuberculosis," a subject so extensive that it was impossible to complete it in the time assigned. On Wednesday morning the third scientific session occurred. Dr. Otto Barkan exhibited pictures of the only new apparatus shown, his newly designed mounting of the slit-lamp to permit adequate examination of the angle

of the anterior chamber. During the convention fourteen papers were presented and discussed.

The finals of the golf tournament were played off in the afternoon and in the evening occurred the annual banquet given at the Waverley Country Club. The instructional courses were repeated on Thursday morning and in the afternoon members cruised on the Columbus River in private yachts.

Over one hundred and fifty members attended, the largest number in the history of the Society. H. G. Merrill, Provo, is president for the ensuing year. The 1936 convention will be held at Del Monte, Calif.

The second convention of the Western Ophthalmological Society followed immediately. Their annual banquet occurred Thursday evening at the Benson Hotel. The following day was devoted to a scientific session. Eleven papers were given and discussed. Dr. Edward Jackson presented the thesis on "Evolution of Vision with Its Practical Suggestions." The next meeting will be at Pasadena at the time of the next postgraduate course in Los Angeles in January, 1936. Dr. Hans Barkan, San Francisco, was elected president.

SOUTHERN OREGON MEDICAL SOCIETY

Pres., H. A. Woods; Secty., E. A. Woods

The forty-fourth annual meeting of Southern Oregon Medical Society was held in Elk's Temple, Ashland, Tuesday, May 14. After registration and payment of dues the meeting was called to order by the president, Harvey A. Woods, of Ashland.

The invocation was given by Rev. Merle L. Edwards, pastor of the First Presbyterian church of Ashland. Prof. Irving Vining, past president of the State Chamber of Commerce, delivered the address of welcome. The minutes of the preceding meeting were read and approved.

Among the communications which were read was a letter from F. C. Adams, president of the Klamath and Lake County Medical Society, inviting the Southern Oregon Medical Society to be guests of their society for the regular meeting next year. Another communication was received from the Woman's Auxiliary to Jackson County Medical Society, then in session at the Lithia Springs Hotel, extending greetings, welcome and wishes for a most enjoyable and happy session.

The following new members were passed on favorably by the Board of Censors and voted into the society: Frank E. Trotman, Merrill; L. L. Truax, W. C. Hunt, E. D. Johnson, Klamath Falls; Russell Keizer, E. R. Keiser, North Bend; Alfred B. Peacock, Marshfield; C. E. Morrison, Klamath Falls; Francis James Moffatt, Medford; T. Thoraldson, Portland, the last named being taken in as an honorary member.

Motion was made and carried accepting the invitation from the Klamath and Lake County Medical Society to meet in Klamath Falls in 1936.

The following officers were elected for the ensuing year: President, E. D. Johnson, Klamath Falls; Vice-President, E. B. Stewart, Roseburg; Secretary-Treasurer, E. A. Woods, Ashland; Member of Board of Censors to serve three years, Gordon MacCracken, Ashland; Delegate to State Convention, Harvey A. Woods, Ashland; alternate, Chas. T. Sweeney, Medford.

Since our 1934 meeting one member of this society has died, J. C. Smith, Grants Pass. A very fitting and appropriate obituary was given by F. G. Swedenburg. As has

always been our custom, flowers in the form of a beautiful wreath were sent to Dr. Smith's funeral.

The president, Harvey A. Woods, delivered an address on sickness insurance.

Then followed the first scientific paper, "Recognition of Early Cancer of the Cervix," illustrated with lantern slides, by Karl H. Martzloff of Portland. Discussion was opened by Geo. E. Houck of Roseburg.

Luncheon was served in the basement of the Elk's Temple, prepared by the Legion Auxiliary.

At the afternoon session a paper was read by John D. Humber of San Francisco, Calif., "The Surgical Treatment of Angina Pectoris," illustrated by motion pictures in natural colors. Discussion opened by C. L. Ogle of Grants Pass.

"Some Aspects of Coronary Arterial Disease," illustrated by lantern slides, was given by Warren C. Hunter, Department of Pathology, University of Oregon Medical School, Portland. Discussion was opened by F. C. Adams of Klamath Falls.

John M. Blackford of the Mason Clinic, Seattle, Wash., read a paper, "Medical Treatment and Follow-up of Gallbladder Disease," illustrated with lantern slides. Discussion was opened by James C. Hayes, Medford.

A rising vote of thanks was tendered to the four guests who gave their time and came such distances as San Francisco, Seattle and Portland to make the meeting such a success.

WASHINGTON

COWLITZ COUNTY MEDICAL SOCIETY

Pres., C. J. Sells; Secty., A. F. Birbeck

Cowlitz County Medical Society held its monthly meeting at Hotel Monticello, Longview, May 14. The program consisted of papers by J. L. Norris of Longview on "Pelvic Inflammations," J. F. Christensen of Kelso read a paper, "Medical Ethics," Luman F. Roach of Kalama presented a paper, "Eugenics." The meeting was preceded by a dinner in conjunction with members of the Woman's Auxiliary to the county medical society. Mrs. J. F. Christensen was elected president, succeeding Mrs. J. W. Henderson.

GRAYS HARBOR COUNTY MEDICAL SOCIETY

Grays Harbor County Medical Society held a meeting at Oakhurst Sanatorium, Elma, May 15. About twenty members of the society were present. Together with the Woman's Auxiliary to the county society they were entertained at dinner by Dr. and Mrs. Anderson, in charge of the sanatorium.

The program considered diagnosis and treatment of tuberculosis. Frederick Slyfield of Seattle discussed diagnosis of the disease. Ross E. MacPhail of Mountain View Sanatorium considered treatment. Their addresses were illustrated by lantern slides. A general discussion followed. At the same time the Woman's Auxiliary held its meeting under the presidency of Mrs. Milton Graham.

KING COUNTY MEDICAL SOCIETY

Pres., R. L. Zech; Secty., F. H. Douglas

King County Medical Society held its regular meeting in the auditorium of Medical-Dental Building, Seattle, May 6, President Raymond Zech presiding. Announcement was made of meeting of the service bureau on May 13, and also of the Woman's Auxiliary on the evening of May 15, to be addressed by John L. Harvey, chief of the Federal Foods

and Drug Administration at Seattle. It was announced no regular meetings of the society will be held during June, July and August.

Applications for membership were presented from J. B. Jacobs and John W. Skinner.

C. F. Davidson reported a case of gigantism in a boy of fourteen years. Three years ago he was admitted to Orthopedic Hospital on account of double otitis media. On account of appearances suggesting myxedema a roentgenogram of the sella turcica was made, revealing a sella twice normal dimensions. A diagnosis of pituitary tumor was made. Roentgen exposure was advocated but only two exposures were made and the patient did not return. During the past three years the boy has grown to gigantic proportions, the sella turcica having increased in size by 50 per cent. He has become physically incapacitated and mentally deficient. Rational therapy would include thyroid to compensate for the thyroid deficiency, sex hormone to stimulate sex development and operative procedure to relieve the presumable adenoma from which the excessive growth hormone is supposed to be emanating. The case was discussed by Drs. Berens, Swift, Flothow and Lester Palmer.

Maurice F. Dwyer read a paper on "Cancer of the Uterus." Half the cases of cancer of the cervix could be prevented if recognized and treated early. The most common predisposing factor is neglected cervical laceration following childbirth, cancer of the cervix in nullipara being rare. It is uncommon in Jewish women due to the high degree of sexual hygiene among them. Prognosis should not be based exclusively on histologic examination. Factors of radiosensitivity, extent of local lesion, its character, location and other factors must be given due consideration. All diseased conditions of the cervix should be eradicated by electrocoagulation, excision and repair of lacerations. Carcinoma of the cervix is best treated by radiation. The paper was discussed by Drs. L. L. Stephens, P. W. Willis and C. B. Ward.

Edward Lecocq read a paper on "Caries Sicca." Etiology has been a matter of disagreement. Syphilis, tuberculosis, osteomyelitis and rheumatoid disease have been given as causative factors. In some cases there is history of trauma. The disease in most cases involves the shoulder joint. It may invade the bones or the joints without suppuration. The joint space is obliterated and supplanted with dense tissue. Two illustrative cases were reported.

PIERCE COUNTY MEDICAL SOCIETY

Pres., V. E. Crowe; Secty., W. B. Penney

The regular meeting of the Pierce County Medical Society was held at the Western State Hospital, Fort Steilacoom, May 14, with President V. E. Crowe in the chair. Minutes of the previous meeting were read and approved.

The Secretary gave the third reading of the proposed change in by-laws and President Crowe asked for a discussion, stating that he thought this was an important matter. Discussion was participated in by Drs. Dayton, Hopkins, W. W. Pascoe, Whitacre and Robertson.

Election of officers resulted as follows: President, J. R. Turner; Vice-President, T. H. Duerfeldt; Secretary-Treasurer, W. B. Penney; Trustees, two-year term, L. J. Hunt, M. T. Nelsen; Delegate to state meeting, two-year term, W. B. Penney.

Vote on change in by-laws resulted as follows: for 17, against 44.

After the business meeting W. N. Keller, Superintendent

of the hospital, welcomed the members and gave a talk on "The Prevalence of Mental Disorders." R. H. Rea read a paper on "The Significance of Mental Disease," and C. C. Carlson presented a paper on and a report of the work done in the hospital with the malaria treatment of paresis. H. S. Judd explained the routine of a new admission to the hospital.

There being no further business, the meeting adjourned and was followed by a buffet luncheon in which the wives of the members joined, served in the beautiful new lobby of the hospital.

SNOHOMISH COUNTY MEDICAL SOCIETY

Pres., A. H. Gunderson; Secty., E. J. Van Buskirk

Snohomish County Medical Society held a meeting May 2 at Aldercrest Sanatorium, Everett. The program consisted of an address by Fred Slyfield of Seattle on control and diagnosis of tuberculosis. L. G. Woodward of Everett, president of Snohomish County League for Prevention of Tuberculosis, gave a resume of recent developments in control of the disease.

Plans were announced for a tricounty meeting to be held in Everett, June 6, comprising the county societies of Snohomish, Skagit and Whatcom.

M. R. Fox, who has practiced in Payette for the past nine years, has moved to Charleston, W. Va. He will be connected with a clinic in that city where he will devote himself to diagnosis.

WALLA WALLA VALLEY MEDICAL SOCIETY

Pres., H. C. Cowan; Secty., G. R. Gowen

Walla Walla Valley Medical Society held a meeting at Grand Hotel, Walla Walla, May 8. Three guests were present from Moscow and six from Lewiston, Idaho.

In the absence of Dr. Caspar Sharples and Mr. Frank Foiese of Seattle who were expected to deliver addresses, without much notice a program was arranged by local men. John Lyman read a paper on "Pancreatitis," the history and present day status of this subject being carefully reviewed. Six cases from local hospitals illustrated various types of this disorder. G. R. Gowen presented the subject of "Mastoiditis" and Elmer Hill spoke on "Elliott Treatments."

It was voted to change the regular monthly meeting of the society to the second Thursday. The following statement of proposed constitutional change was read by the secretary: In the event that our present efficient treasurer be unable to serve at any future time, it is here proposed that at that time Article 8 of the constitution be changed to read as follows:

"The officers of this society shall be President, Vice-President, Secretary-Treasurer and five Trustees; of the five trustees the President, Vice-President and Secretary-Treasurer shall be three. The former duties of the censors shall be performed by the trustees. The trustees shall also perform any and all duties usually required of trustees in other societies of the state and nation.

"All funds collected shall be deposited in a bank selected by the trustees and shall be withdrawn only by the Secretary-Treasurer and one other trustee signing the check."

A special meeting of the society was held at noon, Friday, May 10. One object was to endorse a credit bureau, which was done.

The second object was to see that each and every member of the society reaffirm his intention of not allowing

any "hospital association" to employ any of the profession. All those who had formerly signed a pledge not to do work for or to be paid by any hospital association reaffirmed this pledge and all the others signed such a promise. The doctors of the society intend to run their own business.

On motion of Dr. Rooks it was voted "that a committee be appointed to confer with Libby, McNeal and Libby and explain in a friendly way our position in regard to hospital associations from outside of Walla Walla attempting to furnish medical care to persons residing in this community." Later this committee was advised to state its position in writing, to retain a copy thereof and give the original to the company contacted.

YAKIMA COUNTY MEDICAL SOCIETY

Pres., H. S. Atwood; Secty., T. J. Schott

Yakima County Medical Society held its regular monthly meeting at Commercial Hotel, Yakima, May 13, president H. S. Atwood presiding. John H. Labadie of Portland delivered an address, "Common Skin Conditions." J. Guy Strohm of Portland read a paper, "The Masquerade of Syphilis."

The following delegates were elected for the annual meeting of the state association at Everett in August: H. S. Atwood, D. F. Bice, F. H. Brush and W. K. Cocklin.

IDAHO

SOUTH SIDE MEDICAL SOCIETY

Pres., E. L. Berry; Secty., J. N. Davis

South Side Medical Society held a meeting at Twin Falls, May 16, following a dinner at Park Hotel. The meeting was attended by a large membership. L. A. Stevenson of Salt Lake City, guest speaker, addressed the society on "A survey of the Most Important Fields of Medical Research." He dealt particularly with endocrinology and diseases represented in this branch of practice. A general discussion followed the paper.

METHOD OF EVALUATING CARDIAC PAIN IN CHILDREN. Harold C. Lueth, Evanston, Ill., and Don C. Sutton, Chicago (*Journal A.M.A.*, May 18, 1935), believe that Libman's test of diagnosing cardiac conditions is unique in that it makes it possible, in a number of cases, to determine a subjective symptom—pain—in an objective way. In their 100 children sensitivity to pain was tested by pressure over the mastoid process and then over the styloid process. This pressure was gradually increased, depending on the response of the child. When the patient did not complain, the pressure was the maximum that could be obtained by first pressing both thumbs together and then the forefingers, thus ensuring a uniform stimulus. Several physicians of the clinic repeated these tests on some of the children and obtained the same responses that were recorded previously. Before making the test, the examiner must be certain that there is no local disease in the region of the mastoid, otitis media, mastoiditis, enlarged postauricular glands, painful scars of old mastoidectomies, and skin abrasions or lesions preclude testing that area. Normally, pressure over the mastoid causes no pain, which may be used as a control reading. The same amount of pressure applied to the styloid tips is painful to a few but painless to most individuals. The pressure should be applied in one direction, since rubbing the bones evokes the painful response of rubbing the periosteum. The presence of heart sensations, i. e., pain or palpitation, in the group who normally do not complain of pain on pressure over a bony region is usually accompanied by active cardiac disease in the majority of cases. A total of thirty-six patients had demonstrable pathologic changes of the heart, while a total of twenty-seven patients complained of precordial symptoms, again illustrating the close parallelism between cardiac damage and pain. Those children who complain of severe pain following pressure on a bony area often do not have any active cardiac lesion.

STATE DEPARTMENTS OREGON

OFFICIAL OREGON PROCEDURES

Portland, Ore., May 22, 1935.

The May meeting of the Council of Oregon State Medical Society was held at Klamath Falls, May 13, by the invitation of the Klamath and Lake Counties Medical Society. A large attendance of members of the Council from various parts of the state was present. The meeting was held at a dinner at the Elk's Temple. About thirty-five members of the Klamath and Lake Counties Medical Society were present during the transaction of business.

At luncheon the members of the Council and of the local medical profession as well as several members from Ashland were the guests of the Klamath Valley hospital, where various activities of the state society and of the American Medical Association were presented. Those who spoke included Ralph A. Fenton, our delegate to the American Medical Association, Otis F. Akin, our Treasurer and member of the Medical Defense Committee, T. Tharaldsen, president of the Multnomah County Medical Society and member of the Committee on State Industrial Affairs, and Thomas Wynne Watts of the Committee on Public Policy.

At the request of the American Medical Association, and as referred to the Executive Committee, a committee consisting of Ralph A. Fenton, Banner R. Brooke, and Mr. Clyde C. Foley, was appointed to arrange with Dean Richard B. Dillehunt of the University of Oregon Medical School for the presentation of the subject of sickness insurance to the graduating class.

House Bill No. 373, passed at the last session of the legislature, provided for an advisory committee on laboratories to the Oregon State Board of Health. C. H. Manlove, F. R. Menne, R. L. Benson and Miss Emma Howe were appointed.

The plans of the committee on cancer control were referred to the Executive Committee.

The Council voted to invite the 1936 session of the Pacific Northwest Medical Association to meet in Portland. It was proposed that this meeting be commemorative of the centennial of the coming of Dr. Marcus Whitman to the Pacific Northwest.

Plans for the September meeting of the Society at Gearhart were discussed. A notable program is in preparation and a very large attendance is anticipated.

The Executive Secretary reported that our membership roll had been increased by the addition of fifty-five new and reinstated members, an increase of almost ten per cent. The memberships in the society should be further increased and members are joining as they realize the benefits to be derived.

On May 14, the day following the Council meeting in Klamath Falls, the Southern Oregon Medical Society met at Ashland. This meeting as usual was well attended and a good program was presented. Those who attended had a good time.

The Medical Reporter has now passed through four issues. Its coming with its breezy messages is looked forward to by many of our members. Its militant attitude is enjoyed by all who read it. Its articles are short, to the point, and are stirring up a lot of comment. This publication is doing a good work.

Physicians of Oregon are reminded that laws passed by the last session of the legislature go into effect June 8. After that date it is necessary for physicians to have the words

"Physician and Surgeon," or "Physician" or "Surgeon" on their cards, letterheads, etc., wherever the word "doctor" or any abbreviation thereof appears. Rubber stamps may be obtained at cost from headquarters.

ADALBERT G. BETTMAN, *Editor.*

WOMAN'S AUXILIARY

The Auxiliary to Oregon State Medical Society held its May board meeting at Salem, in the First Presbyterian Church, May 17, at which members of the Marion-Polk-Yamhill County Auxiliary were hostesses. Mrs. John G. Abele, State President, presided, and extended greetings. Mrs. C. A. Downs, president of the tri-county auxiliary, gave the address of welcome.

Mrs. Abele made a short report and announced that Mrs. Harvey G. Parker, Mrs. H. H. Foskett, Mrs. Joseph A. Pettit and Mrs. C. D. Bodine would represent Oregon at the National meeting in Atlantic City. Mrs. Edward Allen Pierce, Revisions chairman, recommended an opening paragraph for the State Constitution similar to that of the National Constitution, which states that in all its activities it will be guided by the Advisory Council appointed by the State Medical Society.

Luncheon was served in the banquet hall, following which Dr. John C. Evans, neuropsychiatrist at Oregon State Hospital, discussed House Bill No. 440. Following his instructive talk members were taken through the State Institutions to further cite cases.

COMPONENT COUNTY AUXILIARIES

County Auxiliaries are receiving official visits from the president of the State Auxiliary. Mrs. John G. Abele spent Friday, April 26, with the Clatsop-Tillamook group of which Mrs. Leon W. Hyde is president. Luncheon at Bywater was followed by a meeting to discuss further plans for the annual meeting in Gearhart in September.

Klamath-Lake Counties held their regular monthly meeting and annual Public Relations tea, May 13, at which our state president was honored guest. More than one hundred women from various organizations were entertained.

On Tuesday, May 14, a large group of women motored from Klamath, Josephine and Jackson Counties, besides visiting delegates from distant cities, to attend a meeting of the Jackson County Auxiliary which was held in Ashland in conjunction with the annual session of the Southern Oregon Medical Society.

Business sessions in the Lithia Hotel ballroom preceded the luncheon, and speeches were made by Mrs. Abele and Dr. C. I. Drummond. Addresses at the luncheon included Miss Ardath Loshier, superintendent of the Community Hospital, who spoke concerning national hospital week. Dr. Mattie Shaw spoke on "Women in Medicine," Mrs. William W. P. Holt talked on "This Business of Being a Doctor's Wife."

Dr. Thomas Wynne Watts of Portland addressed the gathering on the value of being a member of the medical society's auxiliary. Clyde Foley, executive secretary of the Oregon Medical Society, spoke concerning activities and purposes of the organization. The following advisors of the Auxiliary spoke briefly: Drs. C. T. Sweeney of Medford, W. H. Heckman of Central Point, F. G. Swedenburg and D. M. Brower. Mrs. Gordon MacCracken of Ashland, president of the group, presided.

MRS. RAYMOND T. KAUPF,

Chairman of Press and Publicity.

WASHINGTON

SUGGESTIONS TO WASHINGTON DOCTORS

Everett, Wash., May 27, 1935.

A splendid meeting in Wenatchee, May 1, concluded my series of visits to the component county societies. For me it has been a pleasant task and I trust it has not been without value to the State Association. I feel that the various county societies should have at least one contact with the administration between the annual meetings of the State Association; that a continuation of such visits by each recurring administration would be of increasing benefit to the Association in increased interest in the affairs of the Association which in turn would show itself in action.

And now we will be looking toward the end of the Association year. Remember the date of the State meeting, August 12, 13 and 14. As usual, Monday will be devoted to golf on a splendid course. Monday evening there will be a public meeting, at which our guest speakers as well as state men will give the public an insight into our mutual problems, scientific and economic. The full program will be published next month.

Speaking of economics, do I imagine it or has there been a lessening of pressure toward the socialization of medicine? It may be a quiet spell before another storm. In any event, I feel it behooves us to take advantage of the situation and continue the active opposition which the profession in our state has started through the Public Relations Committee. There must be a sustained two-year effort and this means moral, financial and active support of every member of the profession according to his ability. The trustees and the committee will welcome your suggestions and solicits your aid.

The question of medical relief under the WERA or the SDPW, State Department of Public Welfare, as it is now called, has come to the front again. Through a recent conference with Mr. Ernst I find that those in charge of relief are fully cognizant of the inadequacy of medical relief and the compensation therefore, as it at present exists. They, like ourselves, would like to see a more adequate and uniform system than the present one. He has promised me an inventory of the present county plans and through this hopes that the profession can help him to formulate one state-wide plan. The task is not an easy one and presents many difficulties that will have to be worked out through

cooperative conferences. Meanwhile I would be glad to receive suggestions.

NATHAN L. THOMPSON,
President Washington State Medical Association.

WOMAN'S AUXILIARY PRIZE ESSAY CONTEST

Tacoma, Wash., May 23, 1935.

In January, 1935, under the leadership and inspiration of our esteemed State President, Mrs. Nathan L. Thompson, and with the approval of the State Medical Association, the Auxiliary to Washington State Medical Association announced and sponsored a state-wide essay contest on the subject, "Contributions to Scientific Medicine in the Last Century." The contest was open to all seniors and juniors in high schools, with the exception of sons and daughters of physicians, the essays not to exceed 2000 words. The Woman's Auxiliary in each county conducted the county contests and awarded first and second prizes to the winning contestants, the first a cash prize and the second a year's subscription to Hygeia Magazine.

The interest of high school juniors and seniors throughout the state has been both interesting and inspirational. The three state judges graded the essays on a 100 per cent basis, the two highest averages being awarded first and second prizes. The first prize of ten dollars was won by Donald Bourgaize of Pierce County with an average of 88½ per cent. The second was won by Miss Edna L. Lewis of King County, her average being 87½ per cent.

A fine spirit prevailed throughout the contest and county auxiliaries are to be congratulated for their interest and cooperation in this project. A number of the contestants expressed a great interest in the subject, stating that if they did not win first or second place they had received valuable knowledge and inspiration through the study and research necessary in order to write the essay and had stimulated a new interest for them in medicine and medical science.

Judging from the gist of the essays, these young people have gained the knowledge through the contest that the doctor has stood guard at the frontier and smoothed the path for continued progress in every branch of human endeavor, realizing that medical knowledge is comprised of assembled facts or treasured traditions and that advance is due to the correlation of many lines of endeavor.

MRS. EDWIN L. CARLSEN,
State Public Relations Chairman.

IDAHO

IDAHO PUBLIC HEALTH MINDED

Twin Falls, Ida., May 23, 1935.

The publicity that has been given to public health matters in Idaho is bearing fruit abundantly. By mail, wire, phone and the press we are flooded with evidence that the citizens of Idaho are becoming public health minded. An appeal was recently made to a Rotary club convention to have them put their shoulder to the wheel. Similar appeals should be taken to every similar service club in the state.

Our present position in our public health campaign is far advanced from its former status and it is strategic and must be maintained until we are ready for the next big drive toward the objective we must and shall attain.

Everybody just now seems to be making definite plans to attend our meeting in Boise next September. Medical friends from out of the state will be very welcome. The men of Idaho just naturally cannot afford not to come.

CHARLES R. SCOTT,
President Idaho State Medical Association.

BOOK REVIEWS

THE PRINCIPLES AND PRACTICE OF UROLOGY. By Frank Hinman, A.B. Leland Stanford Junior University; M.D. Johns Hopkins Medical School. Clinical Professor of Urology at the University of California Medical School. 1111 pages with 513 illustrations and 48 tables. Cloth, \$10.00 net. Philadelphia and London: W. B. Saunders Company, 1935.

This volume is one of the important of the year. The background of the author is that of a teacher, excellently grounded in the fundamentals of urology and a long experience in writing. He is not only a teacher but conducts one of the research departments of the University of California. In this single volume, which is almost encyclopedic as far as urology goes, is included everything necessary in the instruction of medical students. It covers the field completely for the general practitioner and should prove of interest and value as a reference book to the trained urologist. In the main, the volume is divided into biologic and clinical urology.

The biologic section is particularly rich. The comparative anatomy of the urogenital tract begins with the most elementary types and runs through the invertebrates. The primary and secondary excretory ducts and accessory channels are compared with that of reproduction. The author shows the whole process of formation of the renal glandular system, culminating in the human. Such creatures are included as rabbits, cats, pigs, snakes, catfish, chickens, seals, monkeys, bears, horses, cows and the whale. Most of the illustrations are by the medical artist, Ralph Sweet, and are beautifully done. It is the contention of the author that to understand urology one must know the biologic side of the subject.

The work is first divided into the function of excretion and reproduction. There is an extensive section on normal urologic structure and function. He then proceeds to the principles of urologic practice, including history and symptoms, examination of the urine, rectal examination of prostate and seminal vesicles, radiographic tests, renal function, and then proceeds to the principles of instrumental examinations. This includes the use of the endoscope, urethroscope and ureteral catheters.

The second part takes up the specific general urologic diseases, including anomalies, malformations, urinary obstruction and stases of which he has been a student and investigator for many years. Following this are the infections, the nonspecific infections of the urinary and of the genital tracts, the specific urogenital infections, urinary lithiasis, gonorrhea and lesions of the external genitalia.

Female urology has not been neglected. Practically every type of anomaly ever found and all of the unusual pathologic changes are included in this work. Throughout the author substantiates his findings and deductions by innumerable references to the works of research and clinical findings of his own and other workers in the field of urology. The book winds up with thirty pages of a triply columned index, making it possible to quickly find anything the reader desires. It is highly recommended to all who are interested in the subject of urology.

PEACOCK.

PHYSICAL DIAGNOSIS. By Warren P. Elmer, B.S., M.D. Associate Professor, Washington University School of Medicine, St. Louis, etc. And by W. D. Rose, M.D., Late Professor of Medicine in the University of Arkansas, Little Rock. Seventh Edition. Illustrated. Cloth, 919 pp. \$8.00. C. V. Mosby Co., St. Louis, 1935.

Part I in this book is devoted to normal physical examination technic, while Part II is given over to physical diagnosis of disease. Too much space is given to consideration of the lungs and pleura and especially to the description of meticulous and unusual signs in making a diagnosis. For, after all is said and done, the history, symptoms and roentgen examination are more important in diagnosis of lung troubles than rare skill in physical examination. In the great war tuberculosis specialists found five or six times as many cases of tuberculosis on physical examination of subjects as really existed, after they were carefully studied with roentgen ray, taking of temperatures and examination of sputum.

It is hard for teachers of physical diagnosis to admit that the findings in the chest are often unreliable as compared with the roentgen ray. Thus, nearly two pages are taken up with the physical diagnosis of aortitis, but who would depend upon such a diagnosis without fluoroscopic evidence? As a matter of fact, it has always been taught by good authority that aortitis can only be discovered by physical examination in the presence of aneurism and aortic regurgitation. Even then aneurism may easily be missed.

The disproportionate allotment of space to subjects may be realized when it is found that 342 pages are given to physical diagnosis of diseases of the lungs and pleura and 198 to diseases of the heart and circulation, while 85 are apportioned to the consideration of physical diagnosis of abdominal lesions. The chief reason for this imbalance in the discussion of various parts of the body is the inordinate attention given to the rare and often unimportant physical signs in the chest.

In works on physical diagnosis of diseases of the heart chief consideration is given to murmurs, thrills and configuration of the organ. Yet in practice the larger number of serious heart cases cannot be diagnosed by any of these signs but reliance has to be placed on the symptoms, history, roentgen examination and electrocardiograph. The murmurs themselves are often very misleading unless all the features of the case are given due consideration. Thus the author in his differential diagnosis of mitral stenosis notes the confusion caused by the presystolic murmurs of the Flint variety and those due to aortic regurgitation and tricuspid stenosis. He omits to mention the much more common occurrence of both systolic and presystolic murmurs, caused so frequently by enlargement of the heart where no valvular lesions exists.

WINSLOW.

THE 1934 YEAR BOOK OF NEUROLOGY, PSYCHIATRY AND ENDOCRINOLOGY. Neurology Edited by Hans H. Reese, M.D., Professor of Neurology and Psychiatry, University of Wisconsin Medical School. Psychiatry Edited by Harry A. Paskind, M.D., Assistant Professor of Nervous and Mental Diseases, Northwestern University Medical School. Endocrinology Edited by Elmer L. Sevringhaus, M.D., Associate Professor of Medicine, University of Wisconsin Medical School. 782 pp. \$3.00. The Year Book Publishers, Inc., Chicago, 1935.

The section of neurology has been subdivided as previously, beginning with physiologic and anatomic researches and then covering in a very convenient way the various subgroups of diseases of the nervous system. The remarks by

the editor after each paper are very worthwhile, especially when the book is to be used by the general practitioner. The section on psychiatry is complete and well edited, except for the fact that there is practically no room given for psychoanalytic research. It would seem that some space might be given to such an important contribution to psychiatry, even though it is changing constantly. The value of the section on endocrinology cannot be overemphasized in view of the flood of literature in all medical journals concerning the benefits to be derived from various forms of glandular therapy. Dr. Sevringhaus has ably filtered out the more important and helpful results from this mass of literature. The editors of the Year Book are to be congratulated for producing a most helpful summary of the year's research.

HOEDEMAEKER.

THE 1934 YEAR BOOK OF DERMATOLOGY AND SYPHILIOLOGY. Edited by Fred Wise, M.D., Professor of Clinical Dermatology and Syphilology, New York Postgraduate Medical School and Hospital of Columbia University, etc., and Marion B. Sulzberger, M. D., Associate in above Institution. 704 pp. \$3.00. The Year Book Publishers, Inc., Chicago, 1935.

The editors herein present a fairly comprehensive review of the literature on dermatology and syphilis during the past year. The introductory article is a short thesis on the management of early syphilis, reflecting the experience and teaching of the outstanding dermatologists and syphilologists. The book itself is made up of abstracts of the more important articles with photographs and photomicrographs published by the original essayists. More space than in preceding issues is devoted to cancer, syphilis and tuberculosis. Certain diseases and investigative studies have been given added attention. Included in this group are lymphogranuloma inguinale, drug eruptions, pemphigus, etc. As an aid to those seeking additional information the editors have included a short list of supplementary bibliographic references at the end of each group of diseases and headings.

J. W. SHAW.

A TEXTBOOK OF BIOCHEMISTRY. Edited by Benjamin Harrow, Ph.D., Associate Professor of Chemistry, The City College, College of the City of New York and Carl P. Sherwin, M.D., Sc.D., Dr.P.H., LL.D. Member of the Staff of St. Vincent's Hospital and French Hospital, New York City. 797 pages with 52 illustrations. Cloth, \$6.00 net. Philadelphia and London: W. B. Saunders Company, 1935.

Biochemistry has become so encyclopedic in its scope that it is impossible for an individual to write an adequate textbook. Accordingly the editors of this book have enlisted the services of thirty specialists in various fields of biochemistry to contribute chapters dealing with their particular lines of work. They represent the important medical and research institutions of this country as well as a number in London and Edinburgh. Three unusual chapters have been introduced. The living cell, the first chapter in the volume, is as logical an introduction to biochemistry as a chapter on the atom would be to chemistry. New and varied fields for the expansion of knowledge are represented by chapters on immunochemistry and the biochemistry of bacteria. While this volume is intended primarily for the use of teachers and students of medicine, chemistry and allied branches, it contains information invaluable to the physician interested in the great subject of biochemistry. At the end of each chapter is a bibliography covering complete references to publications in all languages pertaining to the subject under consideration. This is a comprehensive volume which is commended to any one interested in this subject.

FEMALE SEX PERVERSION. The Sexually Aberrated Woman as She is. By Maurice Chideckel, M.D. 531 pp. \$6.00. Eugenics Publishing Company, Inc., New York, 1935.

Many strange and fantastic exhibitions are presented by men and women, whose sex nature and development are perverted from the normal, common to the average man and woman. Some of these come under the observation of the average practitioner, while others fall to the lot only of those who have paid special attention to sexual aberrations. While the general practitioner is perhaps more familiar with these sexual irregularities among men, their diversity is even more striking and frequent among the female sex as outlined by the author of this volume. The abnormalities of the female sexual pervert are demonstrated in the descriptions of the many forms of strange sexual directions to which the victims are prone. Some of these bizarre methods of obtaining sexual gratification are exhibited both by single and married individuals. The strange social relations following these vicious exhibitions are described in this volume. For the most part these perversions seem to be established as permanent characteristics. This book, therefore, deals little with treatment, but it is an enlightening description of many strange abnormal sexual developments.

THE MODERN METHOD OF BIRTH CONTROL. By Thurston Scott Welton, M.D., F.A.C.S., Editor of *The American Journal of Surgery*. 168 pp. \$3.00. Walter J. Black, Inc., New York, 1935.

The widespread interest in birth control has resulted in the publication of many volumes on this subject. The investigations of Ogino and Knaus seem to have established the fact that ovulation occurs at a definite time in the menstrual cycle and the period of fertility is limited to a few days which can be well determined by any individual. "From available statistics the method is reliable in 97 per cent of all cases." The method of determining the fertile period appears complicated for the average woman. In this book the author simplifies the procedure by stating specifically the date to be obtained. There is presented a series of charts dealing with menstrual cycles from 21 to 35 days. The fertile or unsafe days appear in red; the sterile or safe days appear in green. After a woman has determined her cycle, her chart presents a visible demonstration of these two periods. This volume will undoubtedly be useful for one wishing to follow the principles of birth control.

ECONOMIC PROBLEMS OF MEDICINE. By A. C. Christie, M.S., M.D., Professor of Clinical Radiology, Georgetown University Medical School, etc. 242 pp. \$2.00. The Macmillan Company, New York, 1935.

Publications on medical economics have appeared in great abundance in the last few years. The author of this volume was a member of the Committee on the Cost of Medical Care and consequently has devoted study to phases of this nation-wide problem and is thereby in position to express opinions on many of its problems. He states that the book is written from the viewpoint of the private practitioner who has long been interested in the social and economic aspects. Some of the chapters discuss economics, aspects of private practice, the physician and the hospital, health insurance voluntary and compulsory, industrial medicine in addition to other features. If one has a desire and leisure to make a thorough study of medical economics, he will be assisted by reading the views of this author.

TRUTHS ABOUT MEDICINE

PROPAGANDA FOR REFORM

Autolyzed Liver Preparations. The Council on Pharmacy and Chemistry reports that Drs. Castle and Strauss (The Journal, 104:798, March 9, 1935), have presented evidence to show (1) that autolysis of liver does not enhance the potency of liver in bringing about a remission in pernicious anemia and (2) that Autolyzed Liver Concentrate-Squibb as advertised and labeled is not of the claimed potency. The article by Drs. Castle and Strauss was submitted by the Council to E. R. Squibb & Sons for comment. In reply the firm submitted twenty protocols of cases treated with its product. The evidence seems to demonstrate an efficiency of the Squibb product quite comparable to that of the other preparations employed. However, the data are not of a character that permit estimating the potency on a quantitative basis. The Council has experienced considerable difficulty in the consideration of the liver preparations that stand accepted for New and Nonofficial Remedies, particularly in the matter of labeling so as to indicate comparative potency. During the past year the Council's referee has been engaged in a revision of standards of assay and methods of labeling antianemic liver preparations. This revision is being considered by the Council. In view of this the Council has decided to postpone further action on Autolyzed Liver Concentrate pending the submission of new evidence by all the manufacturers which will indicate with much greater accuracy than is now possible the comparative potency of all the products. In consideration of the Council's decision, E. R. Squibb & Sons have agreed to withhold active promotion of Autolyzed Liver Concentrate. (J.A.M.A., March 9, 1935, p. 833.)

Calomelol and Calomelol Ointment Omitted from N.N.R. The Council on Pharmacy and Chemistry reports that Calomelol, manufactured by the Heyden Chemical Corporation, with its dosage form, Calomelol Ointment, was accepted by the Council for inclusion in New and Nonofficial Remedies in 1909. As long ago as 1919 the efficacy of calomel inunctions for treating syphilis was questioned. Recent studies on the excretion of mercury following calomel inunctions (Arch. Dermat. & Syph., 27:1, January, 1933), show that calomel inunctions are not suitable for treating syphilis. In view of the foregoing the Council voted to omit these products from New and Nonofficial Remedies unless the firm should be able to supply evidence to justify their continued inclusion. The firm replied that it was not in position to supply new and convincing evidence as to the efficacy of Calomelol. The Council therefore voted to omit Calomelol and its accepted dosage forms from New and Nonofficial Remedies. (J.A.M.A., March 16, 1935, p. 922.)

Shadocol Not Acceptable for N.N.R. The Council on Pharmacy and Chemistry reports that "Shadocol" has been promoted extensively for oral administration in cholecystography by Davies, Rose and Co., Ltd., Boston. The labels and advertising divulge the fact that the preparation contains tetraiodophenolphthalein sodium, the substance for which the Council coined the shorter nonproprietary name tetiothalein sodium. The Connecticut Agricultural Experiment Station in Bulletin 363, July, 1934, reports the following composition (calculated from its analysis): Moisture 1.6%; disodium tetraiodophenolphthalein 16.7%; lactose 74.2%; anhydrous citric acid 5.3%; undetermined 2.2%. It is claimed that this unoriginal mixture is "an improved form of orally administering sodium tetraiodophenolphthalein," that "it is an original product" and that it is "the result of extensive research." No evidence is presented to substantiate these claims. Davies, Rose and Co., Ltd., is not the discoverer of tetraiodophenolphthalein sodium and was not the first firm to make it available for therapeutic use. The marketing of this chemical in admixture with milk sugar and citric acid may not be claimed

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THROAT CONGESTION

(AS ASSOCIATED WITH SMOKING)

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Some Clinical Observations on the Influence of certain Hygroscopic Agents in Cigarettes.

Laryngoscope, 1935, XLV, 149-154*

SEE ALSO

Pharmacology of Inflammation: III. Influence of hygroscopic agents on irritation from cigarette smoke.

Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245*



The results reported in these papers find a practical application in Philip Morris cigarettes, in which only diethylene glycol is used as the hygroscopic agent. To any Doctor who wishes to test them for himself, the Philip Morris Company will gladly mail a sufficient sample on request below. ★★

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NAME M.D.

ADDRESS

CITY STATE

THE HARVEY LECTURES. Delivered under the auspices of The Harvey Society of New York. Under the patronage of the New York Academy of Medicine. Series XXIX. 262 pp. \$4.00. The Williams & Wilkins Company, Baltimore, 1935.

This volume comprises the twenty-ninth series of lectures delivered before the Harvey Society in New York. The object of this society is the diffusion of scientific knowledge in selected papers in anatomy, physiology, pathology, bacteriology, pharmacology and physiological and pathological chemistry through the medium of public lectures by men who are workers in the subjects presented. This volume contains eight lectures covering various technical medical subjects. R. E. Dyer discusses "Typhus and Rocky Mountain Spotted Fever in the United States." Ross G. Harrison considers "Heteroplastic Grafting in Embryology." Thomas M. Rivers presents "Filterable Viruses with Particular Reference to Psitticosis." The others are equally interesting and all are worthy of careful reading.

THE 1934 YEAR BOOK OF GENERAL THERAPEUTICS. Edited by Bernard Fantus, M.S., M.D., Professor of Materia Medica, Pharmacology and Therapeutics, University of Illinois College of Medicine, etc. 462 pp. \$2.25. The Year Book Publishers, Inc., Chicago, 1935.

This is one of the most useful books of this series, presenting a review of the progress and advances in therapeutics during the past year. The material treated is extensive. It is included under general headings of general therapeutic technic, antipathogens, tissue alterants, restoratives, function modifiers, toxicology and nonpharmaceutical therapy. Under these topics each therapeutic procedure is discussed briefly, the important principles clearly presented so that the reader may obtain essential facts. By consulting the index one can readily approach any therapeutic measure which he has in mind.

HUGHES' PRACTICE OF MEDICINE. Revised and Edited by Burges Gordon, M.D., Associate Professor of Medicine, Jefferson Medical College, etc. With Sections on Nervous and Mental Diseases by Harold D. Palmer, M.D., Neurologist, Pennsylvania Hospital, etc., and Diseases of the Skin by Vaughn C. Garner, M.D., Assistant Professor of Dermatology and Syphilology, University of Pennsylvania, etc. Fifteenth Edition. With Sixty-one Illustrations. 808 pp. \$5.00. P. Blakiston's Sons & Co., Inc., Philadelphia, 1935.

The many editions of this volume attest to its practical value. It presents a summary of the essentials for medical practice. Practically all the diseases which one encounters in general medical practice are listed. Each discusses definition, etiology, anatomy, symptoms, diagnosis, prognosis and treatment. Only essentials are considered, controversial material being omitted. If one wishes a textbook on practice for handy reference, this volume will be found useful.

AIDS TO SURGERY. By Cecil A. Joll, M.S. (Lond.), M.D. (Bris.), B.Sc. (Lond.), F.R.C.S. (Eng.), Senior Surgeon and Lecturer on Surgery to the Royal Free Hospital, etc., and Reginald C. B. Ledlie, M.B., B.S. (Lond.), F.R.C.S. (Eng.), Surgeon to the Miller General Hospital, etc. Sixth Edition. 612 pp. \$2.75. William Wood & Company, Baltimore, 1935.

This is a handy publication containing worthwhile facts on surgical procedures and questions dealing with conditions of every day practice. There are no discussions of debated methods. Under each title appear descriptions of the surgical conditions, pathology, symptoms, diagnosis and treatment, all condensed for ready reference. This volume offers a convenient handy book for the busy surgeon.

CLINICAL MANAGEMENT OF SYPHILIS. By Alvin Russell Harnes, M.D., Chief of Congenital Luetic Clinic, New York Hospital. 71 pp. \$1.50. The Macmillan Company, New York, 1935.

The author presents methods of therapy for the management of syphilis in all stages for the benefit of the general practitioner, in accordance with the treatment of the syphilis clinic of New York Hospital. Emphasis is placed on cardinal points followed in the best syphilologic practice. In this small volume are briefly mentioned essential factors which every practitioner treating syphilis needs for every day use.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles by Leading Members of the Medical Profession Throughout the World. Edited by Louis Hamman, M.D., visiting physician Johns Hopkins Hospital, Baltimore. Volume I, 45th series, 1935. J. B. Lippincott Company, Philadelphia, Montreal, London.

This volume continues the series of this well-known publication which presents much information concerning diseases and their treatment in medicine, surgery and the various specialties. Articles are published on many important topics by twenty-three leading members of the profession connected with various institutions, chiefly in the United States. Anyone desiring up-to-date information will find it worthwhile to inspect this volume.

TRUTHS ABOUT MEDICINE

(Continued from Page 233)

as a "discovery," nor of such fundamental importance as to justify the application of a special name. The Council declared Shadocol not acceptable for New and Nonofficial Remedies because it is an unoriginal and unnecessarily complex mixture, marketed with exaggerated claims, under a proprietary, noninformative name, which is also misleading because it implies that the preparation is useful for casting x-ray shadows in general, when in fact the use of its principal ingredient, tetiothalein sodium, is restricted to the biliary tract. (J.A.M.A., March 16, 1935, p. 922.)

Ralston Wheat Cereal Acceptance Withdrawn. The Committee on Foods reports that in 1932 it accepted Ralston Wheat Cereal manufactured by the Ralston Purina Company, St. Louis. Ralston Wheat Cereal is essentially whole wheat with coarsest bran removed and added wheat embryo. The wheat embryo content is approximately twice that of whole wheat. The company signed an agreement to observe the rule of the Committee on Foods to furnish regularly copy of all advertising for review. Subsequent to the agreement, however, the advertising was not furnished. Nonsubmitted advertising for Ralston Wheat Cereal, in addition, was found to conflict with Committee requirements for good advertising. The advertising is false and misleading, a discredit to the product and to the company. Ralston Wheat Cereal will therefore no longer be listed among the products accepted by the Committee on Foods. (J.A.M.A., March 16, 1935, p. 922.)

Wheatena Acceptance Withdrawn. The Committee on Foods reports that Wheatena, manufactured by The Wheatena Corporation, Wheatonville, Rahway, N. J., was accepted by the Committee in 1931. It is a toasted granular wheat cereal composed essentially of the endosperm, the major portion of the bran and the embryo of red winter wheat. The manufacturer is not willing to furnish the Committee with copy of all pieces of new advertising in accordance with the requirements of its rules and regulations. Since the manufacturer of this accepted food is not willing to comply with this simple requirement to assure that the advertising is being maintained acceptable, acceptance has been withdrawn. (J.A.M.A., March 16, 1935, p. 923.)

Cod Liver Oil. Cod liver oil has long held a prominent place among therapeutic agents. Despite studies that have

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TRUTHS ABOUT MEDICINE

(Continued from Page 233)

revealed the enormously greater antirachitic potency of viosterol as gauged by the conventional bio-assay methods, cod liver oil is still highly regarded. There is evidence that, based on units of vitamin D as determined by assay on rats, cod liver oil is superior to viosterol in the cure and prevention of rickets in human infants. Despite the fact that nearly all fish oils contain vitamin D, perhaps the most striking support for the peculiar efficacy of cod liver oil has been recently brought forward by Bills, Masengale and Imboden, who found that blue fin tuna liver oil with 40,000 units of vitamin D per gram was only one-sixth as effective when assayed with chicks as was cod liver oil with only 100 units of vitamin D per gram. These and other observations have suggested that there are several forms of vitamin D. Holmes and Remington have shown that American cod liver oil contains more iodine than do most ordinary foods, calculated to the dry basis. The content of iodine varies with the place where the fish are caught, the average of the values being nearly 9 parts per million. However, it is not to be concluded that cod liver oil should be administered for its iodine content. (J.A.M.A., March 16, 1935, p. 926.)

The Present Status of Aspirin-Bayer. Aspirin-Bayer was omitted from New and Nonofficial Remedies in 1917 because of objectionable lay advertising of the product. The attention of the Council on Pharmacy and Chemistry was again called recently to the present character of the lay advertising promulgated by the manufacturers of Bayer Aspirin. In the interest of the public, the Council therefore made a new survey of the advertising for Bayer's Aspirin and found it more flagrant and insidious than that for which the product was long ago omitted from New and Nonofficial Remedies. A wide variety of therapeutic claims has been made, ranging from mere statements of alleged

(Continued on Page 15)

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DIRECTORY OF COUNTY MEDICAL SOCIETIES

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Idaho Falls Medical Society.....	President, J. W. West Idaho Falls	Secretary, H. B. Woolley Idaho Falls
Kootenai County Society.....	President, J. T. Wood Coeur d'Alene	Secretary, R. T. Hensen Coeur d'Alene
North Idaho District Society.....	President, C. O. Armstrong Moscow	Secretary, J. E. Baldeck Genesee
Pocatello Medical Society.....	President R. P. Howard Pocatello	First Thursday—Pocatello Secretary, D. C. McDougall Pocatello
Shoshone County Society.....	President, G. H. Kennett Kellogg	Secretary, J. R. Bean Wallace
Southwest Idaho Society.....	President, F. M. Cole Caldwell	Secretary, H. E. Dedman Boise
South Side Society.....	President, E. L. Berry Buhl	Secretary, J. N. Davis Kimberly
Upper Valley Medical Society.....	President, T. A. Ellison St. Anthony	Secretary, R. R. Merrell St. Anthony

OREGON

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TRUTHS ABOUT MEDICINE

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superior solubility to outright and unqualified claims for actual prophylaxis and cure of the common cold. A number of claims, intermediary to these two extremes, relating to the relief of aches and pains of indiscriminate anatomic distribution also occur. Likewise may be found many statements pertaining to the alleged endorsement by the medical profession of Bayer Aspirin in preference to other brands; to absolute safety in the use of the product irrespective of dosage; to its harmlessness on the heart (with the implication that such harmlessness is characteristic only of the Bayer preparation), and to its alleged greater rapidity of action. It should first be pointed out that Bayer Aspirin is merely a commercial proprietary name for the U.S.P. acetylsalicylic acid (from which it differs solely by its extensive advertising to the laity). The Council has confirmed its rejection of Bayer Aspirin for inclusion in New and Nonofficial Remedies because the unrestrained advertising of the Bayer product has given it an unfair advantage over other brands, because the indiscriminate use of Bayer Aspirin, as urged in the advertising, is inimical to public and individual health, both directly and indirectly, and because Aspirin (acetylsalicylic acid) is potentially a dangerous drug and its unqualified use as a home remedy

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TRUTHS ABOUT MEDICINE

(Continued from Page 15)

should be undertaken, originally in any case, under the guidance of the family physician, whose knowledge of the personal characteristics of the individual patient can alone render such use safe and advisable. (J.A.M.A., March 23, 1935, p. 1005.)

Meningococcus Antitoxin. The Council on Pharmacy and Chemistry reports that a review of recent studies has convinced it that meningococcus antitoxin shows a promise that makes it worthy of more extended clinical trial; the evidence, however, not being sufficient to warrant unlimited acceptance, the Council voted to accept the product submitted by Parke, Davis & Company for one year only, in the hope that this acceptance may result in a clearer evaluation of its usefulness. At the end of that period the Council will give the product further consideration. (J.A.M.A., March 23, 1935, p. 1007.)

Snake Venom Solution Moccasin (Lederle). In The Journal, March 30, 1935, p. 1066, appears an article by Peck and Rosenthal on the "Effect of Moccasin Snake Venom in Hemorrhagic Conditions." The Council on Pharmacy and Chemistry reports that at the suggestion of the authors the manufacturer (Lederle Laboratories, Inc.), has submitted the product to the Council in order that a statement of the Council's conclusions might appear in the same issue as the report of the investigators. The Council believes that the present status of the use of this product in hemorrhagic conditions is apparently promising. It has not infrequently resulted in favorable response when other and at present standard methods of treatment have failed. The fact that it results in the control of bleeding in the absence of blood changes suggests its value, even when no lasting effect is demonstrable. More adequate evidence concerning the method by which the venom controls hemorrhages (the investigators claim that it strengthens the vessel wall) is desirable for the further consideration of the preparation. The use, even experimental, of this product should be undertaken with caution, both as to the type of case selected for treatment and as to the actual treatment. Those who make use of it should be able to determine the significance

of local reaction and sensitization, and to desensitize with proper care and judgment. The Council voted that further consideration of Snake Venom Solution Moccasin (Lederle) be deferred until more evidence as to the extent of its usefulness in hemorrhagic conditions is available. (J.A.M.A., March 30, 1935, p. 1073.)

Staphylococcus Toxoid. Both favorable and unfavorable results of the use of staphylococcus toxoid in treating chronic staphylococcal infections have been experienced. On the basis of the available evidence one brand of this product was recently accepted by the Council on Pharmacy and Chemistry. The administration of staphylococcus toxoid to patients with chronic staphylococcal infections usually produces a rise in the titer of circulating antitoxin. This rise fails to occur by treatment with vaccines—the only other specific method. According to recent reports (D. S. Murray, Staphylococcus Toxoid, Lancet 1:303, Feb. 9, 1935; C. E. Dolman, Staphylococcus Toxoid, ibid, 1:306, Feb. 9, 1935), the rise is associated with a measurable improvement in the chronic localized staphylococcal infection. Failures have been reported but these occurred chiefly in cases of acne; in addition, the questions of the specificity of the strains of staphylococcus employed in making the toxoid, and the potency of the preparations used, must be considered. To date, the best results have been recorded with recurrent boils and the least successful with acne. (J.A.M.A., April 20, 1935, p. 1421.)

Acceptance of Shoes. The Council on Physical Therapy of the American Medical Association has been requested to consider for acceptance or rejection shoes designed to prevent and correct foot disabilities. The Council is prepared to give such consideration because it believes that at the present time unwarranted and misleading therapeutic claims are being made for certain makes of shoes. The Council has passed the following motion: "The Council will place on the accepted list shoes the manufacturers of which confine their therapeutic claims in advertising to the profession, provided these claims can be justified. Any therapeutic claims made in advertising to the public will disbar the product from Council consideration." (J.A.M.A., April 27, 1935, p. 1503.)

Fourteenth Annual Meeting



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2. Pathology of Hyperparathyroidism.
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No. 7

EVALUATION OF MALINGERING TESTS AFTER OCULAR INJURIES*

HARRY VANDERBILT WURDEMANN, M.D.
SEATTLE, WASH.

Coincident with the increase in legal actions for damages to the person, especially from automobile accidents and contested claims for state compensation of supposedly injured workmen, there has developed a psychopathic element of exaggeration, simulation and malingering, accompanied by down-right prevarication to the examiner and perjury in the courts. It seems now that a monetary recompense for the slightest accident in which another person is involved is sought for in the majority of cases, whether or not an actual lesion has resulted. Either the shock to the nervous system or the cupidity of the individual or both, in these times of monetary depression, tempts him to try to make some money.

A genuinely injured man, having allowed for the physical disabilities of the accident, not infrequently causes it to obsess him, and introspection and subjective sensations are fostered until a psychogenic state is evolved, not resting on the physical injury itself but upon the idea of the injury aggravated by the personal equation of the individual and the personality of those who are associated with him in any claim for damages or compensation that may be under contemplation. Aside from self-produced damage, I believe that some of these peo-

ple are honest in their complaints, that what at first was a trivial pain or loss of function is so mentally dwelt upon that they actually enlarge their feelings and really believe in the condition thereby produced. In other words, "imagination has magnified the malady," and this with financial reasons has led to the claim for monetary recompense.

The hysteric sometimes simulates blindness as a flight from reality to excite pity. School children feign pain in the eyes to stay away from school, soldiers and sailors, and especially conscripts, to escape duty.

"The malingerer consciously and voluntarily tries to reproduce symptoms which he either previously had himself or observed in others. In every case it can be shown that there is a conscious, purposive effort to escape unpleasant tasks or situations. It is quite possible that every malingerer is to some extent psychopathic" (Clinical Neurology, Wechsler, 1931).

Many of these cases are based upon alleged loss of vision. It is fortunate for truth and justice that it is practically impossible for such people to impose upon and delude the skilled eye examiner, for we have many reliable tests which may be easily understood by the judge and jury; thus the medical testimony in such instances should be accepted as final by compensation boards, and in court cases the jury should be so instructed. All cases should be examined with an open mind; many tests should be given before a sentence of malingering is made. A most important part of the examination is the history and the general observation of the patient,

*Read before the Pan-American Congress on Board S.S. Pennsylvania en route to Venezuela, March, 1934.

not only of his body, and in the subject under special consideration the eyes and vision, but also his mental condition and that of his companions.

The demeanor of the simulator, exaggerator and malingerer is characteristic. He complains more of pain and sensitiveness of the organ, does not cooperate with the examiner, gives varying and contradicting answers to questions. The alleged amount of vision is different at several examinations, and does not agree for different distances. He comes in with his chin depressed, usually with the eye bandaged, with friends who desire to be present at the examination, and objects to the necessary handling, especially to the ophthalmoscopic examination. He invariably tries to enlist the influence of the examiner in securing the money he is after; in fact, his talk always hinges on the money claim he is making. Suggestions of the examiner as to points of pain and symptoms, no matter how impossible, are usually agreed to and magnified.

Persons actually blind short step, turn the face upward, acquire a staring, meaningless expression, and have a listening look, apparent to anyone who has had experience with the blind. The blind man will extend his arm for a handshake and sit down in a chair when directed, while the malingerer will fumble and have to be urged to sit; and if the seat is suddenly moved, he will not obey.

Given a case in which inspection and examination by our various instruments of precision elucidate one or both eyes to be normal, or with little evidence of previous possible injury in the form of cicatrices or opacities of the media, eliminating or allowing for those cases in which congenital defects or errors of refraction are found, after the history is obtained and a general psychic examination is made, we may proceed to the various malingering tests which it is the purpose of this paper to evaluate from the author's experience. It may be that this discussion will develop others not here considered.

The alleged visual acuity by the Snellen Standard of letters and their modification. This will vary more than in a normal person at several examinations, and especially at different distances and with the illumination. A modification of this is Roche's test of 100 cardboard squares with single letters each, ten for each line. The examiner places the letters named and those missed in two piles. The examinee, having no means of comparison, finds it difficult to deceive the examiner. This may be modified by using the letters reflected in a mirror, a use-

ful test which may be shown the patient in proof that he is lying.

Schmidt-Rimpler's test for bilateral amaurosis is for the patient to look at his own hand, modified by Burgardt to put out the forefinger of one hand and touch it with the other. Actually blind persons will direct their eyes to their own hands and touch fingers, whereas the malingerer will look purposely elsewhere and will not touch fingers.

Kopiopia, or loss of accommodation, is almost always due to errors of refraction, paresis of the ciliary muscle, heterophoria, neurasthenia or hysteria, but this tiring of vision is a common complaint. It can only be determined by detective work, when it may be found that the malingerer is spending much time in reading, etc., while he is not observed. I have had several cases in which the complainant's principal allegation was that before the accident he wore no glasses and had to wear glasses afterwards, noted especially in people around forty-five years of age.

The art of simulation of visual field defects is not known to the laity, yet there have been such cases reported. Personally, I have not demonstrated such to my satisfaction, as the concentric contraction or irregular fields found have occurred in demonstrable hysterics. If such be complained of or found by an examination, charts should be made on several days and compared.

Diplopia is not rare after accidents, but true double vision should be readily demonstrated by the stereoscope and by the usual muscle balance tests. Bilateral amblyopia and amaurosis are seldom feigned, yet are known. An allegation of blindness occurring with no objective signs is certainly a ground for suspicion. Here we must carefully eliminate those rare but true cases of blindness, in which the optic nerve shows no atrophy and pupillary reactions are normal, which are due to lesions high up in the optic tract.

Dilation of the pupils is almost a constant of amaurosis but factitious mydriasis may be produced by cycloplegics which, however, produce full mydriasis, whereas the pupil in actual nerve blindness is partially dilated as in the cadaveric state. The test lenses are useful as the malingerer will often allege that a weak lens or even a plain glass improves or diminishes his vision or causes pain.

Harlan's method of making one eye myopic with a 6 D. lens and having the patient read at normal distance, at 10 cm. and then in the distance demonstrates that the alleged blind eye sees. Jackson places a +4.00 lens before the blind eye and a

+2.00 before the sound eye. The distance point of the one will be 25 cm. and the other 50 cm. If he selects 25 cm. and reads, the blind eye sees.

Von Graefe's method of causing double vision in the better eye by a prism, or preferably a double prism, is accompanied by having the patient read aloud first one and then another of the double images. With a single prism the claimant will not always acknowledge double vision.

The crossed diplopia test with a 10-degree prism base out will necessarily cause the eyes to converge involuntarily to avoid the double vision thereby produced.

The stereoscope, or Viuesse's method, demonstrates that the alleged blind eye sees, if the examiner is careful not to let the claimant see the charts before they are placed in position, and assures that both eyes are open.

Above all for quick determination is the method of Snellen of alternate red and green letters looked at with red and green lenses. The one eye sees *fin* and the other *red*, whereas with both eyes the word is *friend*, but educated malingerers are "on" to this test which is easily remembered. The first examination, however, usually catches the complainant in his prevarication.

Not yet in the textbooks is the use of the Howard-Dolman depth perception test, the rods in a box at 6 m., which is impossible of accomplishment by monocular vision.

A new malingering test for the near is that of Ransom-Pickard which I describe more in detail and here demonstrate. This is a test for (1) color perception, (2) stereoscopic vision, (3) near depth perception for both binocular and monocular vision, (4) neurasthenia and staleness, and (5) malingering. It is a valuable adjunct in the examination of applicants for aviation license, especially in those cases in which there is an inequality of visual acuity with heterophoria. It consists of a cork dinner mat eight to ten inches in diameter covered with black velvet. On this are stuck thirty to fifty pins having different colored heads, varying in length from two and one-half to one-half inch. Those actually used by me are fifty in number, ten each of black, white, red, green and blue, the colors being distributed over the different length pins.

The examiner first demonstrates the test but does not explain for what it is designed. He holds the disk or places it on a stand horizontally, two feet in front of the examinee who is given a full length pencil. Holding this in one hand one foot above the

disk, he is told to touch all the pins of a certain color, for instance, red, with the blunt end of the pencil, keeping his head still. This is repeated with each of the five colors; the number he hits for each color is noted and finally added together. Using fifty pins, a percentage is obtained. Glancing strokes are counted as misses. The pins must be hit squarely by the blunt end of the pencil.

This is, next to the Holmgren red and green letters, the most important test for monocular vision, particularly in malingerers who claim to be blind or see poorly in one eye. For if they score 90 to 100 per cent of hits, they surely see with both eyes and their lying claims are thus unsubstantiated.

Scores of 100 per cent of touches are usually obtained with both eyes open with stereoscopic vision in normal persons, but with one eye occluded or a one-eyed man or one with ocular muscle defects, as heterophoria, squint and heterotropia, will score a large percentage of misses. The neurotic and those who are tense, or aviators who have gone stale, will hesitate and show a certain degree of tremor. Defective depth perception findings, as shown by the Howard-Dolman rod test at 6 meters, are corroborated.

In approximately one year after the loss of vision in one eye, as is also the case with congenital or longtime monocular seeing persons, a certain degree of depth perception is acquired. This may be sufficient so that they are not much handicapped in work requiring the use of tools. It has further been found by examination of a considerable number of such persons that they are able to score fifty to seventy-five hits by this test. This may be taken as normal for the monoculars but in a normal seeing person with one eye occluded or one recently blinded in one eye, few of the pinheads are touched. This may also be the answer to the question of safety for one-eyed automobile drivers and perhaps to those exceptional airplane pilots with one eye who have flown many miles without crashes.

Practically all of these tests may be described in plain language and demonstrated to a jury of laymen, so that there will be no doubt in their minds of the reliability of the opinion of the examiner and they may see for themselves that the complainant is feigning blindness or diminished vision.

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THE PRESENT STATUS OF ROENTGEN INTERPRETATION OF PULMONARY TUBERCULOSIS IN CHILDREN *

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The purpose of this paper is to present the medical logic and the roentgen manifestation of the pathology of tuberculosis, by which radiographs of the lung fields of tuberculous infants and children are interpreted. To do this it will first be necessary to outline briefly certain recent developments in radiographic technic, and to show how faulty technic and incomplete roentgen examination of a child's chest may mislead the interpreter.

TECHNIC

It has been quite conclusively shown¹ that a knowledge of the degree of inspiration at which a radiograph is made is necessary for accurate interpretation (fig. 1). It has been further demonstrated that the roentgenologist can determine the degree of inspiration depicted in a radiograph of an uncooperative infant or child quickly and easily by certain measurements on the film itself. The distance from the inner end of either clavicle to the center point of the arch of the collateral diaphragmatic dome bears a very constant relationship to the width of the chest (measured at the level of the domes of the diaphragm) during changes in the phase of respiration (fig. 2). When the clavicular diaphragmatic distance equals approximately two-thirds of the width of the chest, measured on any given radiograph, it may be interpreted as representing complete inspiration. When it only equals one-half the width of the chest or slightly less, the plate has been made at complete expiration. This relationship holds true in thoracic breathers, abdominal breathers and in hypersthenics as well as hyposthenics.

At this time there is no precision roentgen apparatus which will routinely depict complete inspiration of infants and other uncooperative patients. By the use of the sign just described even a technician can quickly determine the degree of inspiration represented by her first plate and make further radiographic efforts if necessary.

It is now generally conceded that radiographs of the lung fields of infants and children, exposed

longer than one-twentieth of a second or at a shorter target-plate distance than four feet, are improperly made and may be misleading. The conflict in the reports of the percentage of roentgen examinations which reveal primary tuberculosis in infants and children (one reporting that only 25 per cent of cases are shown by roentgenogram) is probably largely the result of varied technic. It is interesting to note that many articles on primary tuberculosis, which declare that little value is gained from the roentgen ray, are illustrated with films which apparently have been made with scant regard of the most fundamental principles of technic.

Without plates made at various oblique and lateral views, for instance, much of the evidence which the roentgenogram can furnish is lost (fig. 3). It is likely that all well established primary tuberculous cases produce roentgen evidence at some stage.² Serial radiographs at frequent intervals disclose pathologic conditions not revealed at a single roentgen examination. Physical signs and clinical data, regardless of the frequency of clinical examination, cannot always denote the time at which the disease is radiographically visible. The fleeting exudative phenomena, such as epituberculosis, resulting from exogenous or endogenous repeated doses of bacilli and lung responses to tuberculin tests furnish valuable roentgen evidence which is generally lost without serial study.

This method is also helpful in depicting small changes in the pulmonary lesions of children suffering from the adult type of tuberculosis. If a thorough roentgen examination of the lungs of a tuberculin positive child does not elicit evidence of infection, probably one of the following conditions prevails: (a) the plate has not been made during the visible stage of the infectious process; (b) the infection is elsewhere in the body; (c) the lesion is too small throughout its entire course to be visualized; (d) the lesion may be hidden by the heart or

2. Pottenger, F. M.: *Tuberculosis in the Child and the Adult*. The C. V. Mosby Co., St. Louis, 1934.

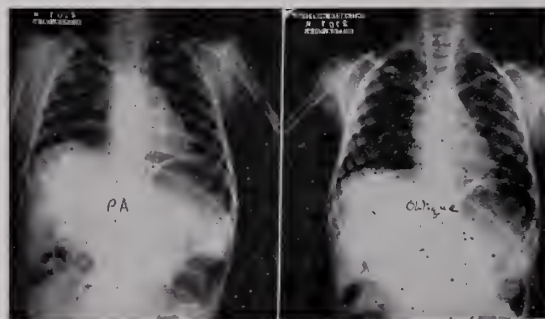


Fig. 3. Note that only a slight change in position of the patient reveals a large mass of tuberculous lymph nodes.

*This paper was used as a basis for the roentgen portion of the symposium on tuberculosis, organized by the Colorado State Medical Society.

*Read before the constituent societies of Idaho State Medical Society at Pocatello, Twin Falls and Boise, December, 1933.

1. Allen, K. D. A. and Waltz, H. D.: A Simple Method for Determining the Degree of Inspiration from the Chest Film. *Radiology*, 24:225-232, Feb., 1935.

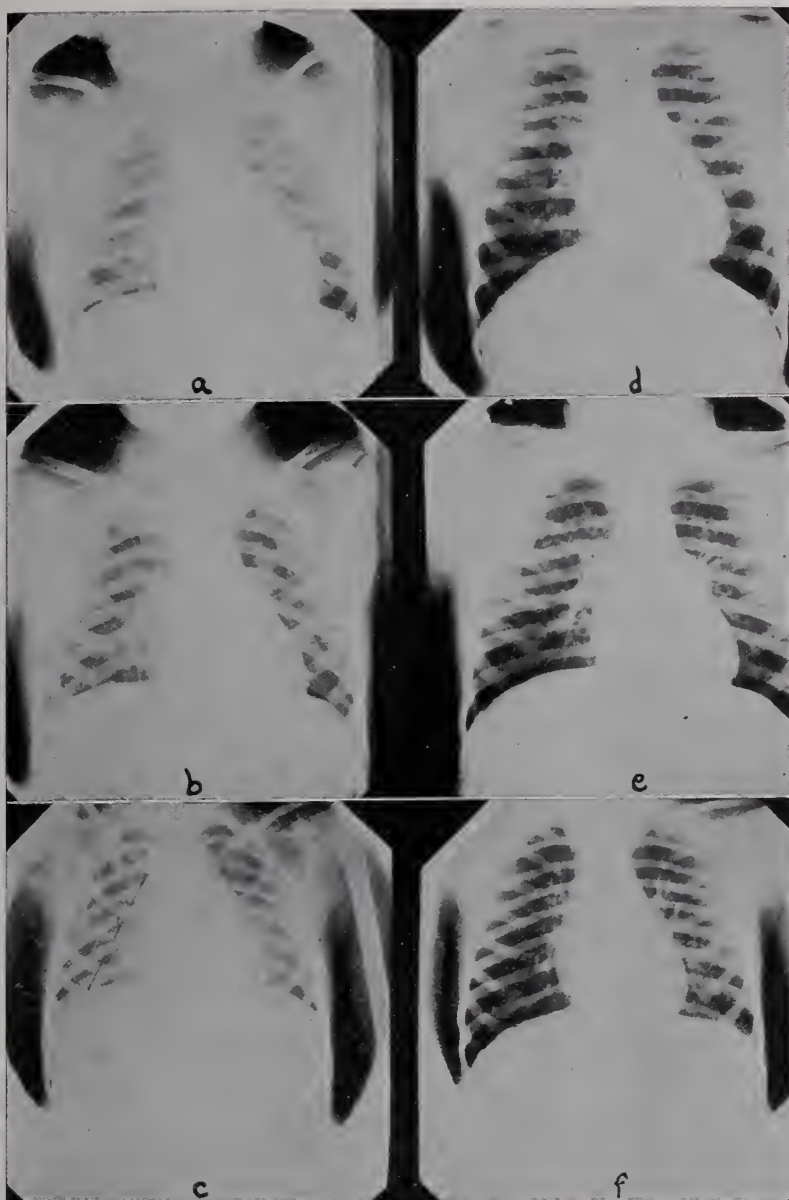


Fig. 1. The criteria upon which roentgen interpretation is based change with the phase of respiration at which the radiograph is made. This is demonstrated here. Three normal children radiated at inspiration (d, e, f) and at expiration (a, b, c) with duplicated factors. Δ

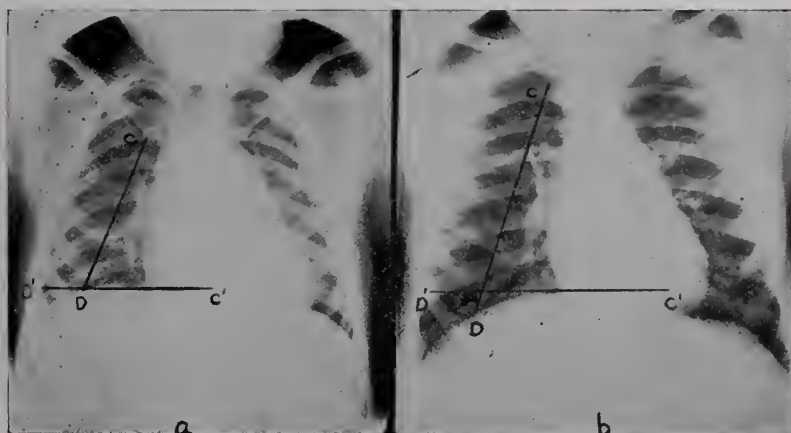


Fig. 2. When the clavicular diaphragmatic distance equals two-thirds to three-quarters of the width of the chest, the plate represents approximately complete inspiration; when only half the width of the chest, complete expiration. Δ Reprinted from article by same author in *Radiology*, Feb., 1935.

mediastinum despite roentgen exposure in various diameters.

INTERPRETATION

Let us now consider the present status of the roentgen interpretation of pulmonary tuberculosis of infants and children in light of certain facts and related theories which are supported by clinical and experimental evidence, and also express the medical logic which is used to interpret shadows on a film in terms of pathology.

CHILDHOOD TYPE TUBERCULOSIS (Primary Infection)

When the lung of a previously uninfected (by tubercle bacilli) organism receives a certain sized deposit of the mycobacterium tuberculosis, there is very little, if any, true inflammation because of the absence of allergic manifestations.** Exudation is not present, only proliferation.^{3, 4, 5, 6} This mild tissue reaction is not even specific to tuberculous infection.⁷ From the point of deposition in the lung parenchyma the bacilli easily reach the hilum lymph nodes through uninflamed lymphatic channels. Here they are generally easily overcome unless the dose is too large or the virulence too high.

** Bacterial allergy is a condition in which the body is sensitized to a bacterial antigen. 4, 6. This develops in guinea pigs within two or three weeks. The tuberculous (allergic) body is purported to have acquired the new capacity to oppose the tubercle bacillus or its products with ordinary acute inflammation.

3. Krause, A. K.: Anatomical Structure of Tubercle from Histogenesis to Cavity. *Am. Rev. Tuberc.*, 15:137-168, Feb., 1927.

4. *Ibid*: Studies on Tuberculous Infection; Dissemination of Tubercle Bacilli in Immune Guinea Pig; Probable Factors Involved in Tuberculo-Immunity. *Am. Rev. Tuberc.*, 14:211-236, Sept., 1926.

5. Rich, A. R. and McCordock, H. A.: Enquiry Concerning Role of Allergy, Immunity and Other Factors of Importance in Pathogenesis of Human Tuberculosis. *Bull. Johns Hopkins Hosp.*, 44: 273-422, May, 1929.

6. Zinsser, H.: Significance of Bacterial Allergy in Infectious Diseases. *Bull. New York Acad. Med.*, 4:351-383, March, 1928.

7. Sabin, F. R., Doan, C. A. and Forkner, C. E.: Reactions of Connective Tissues of Normal Rabbit to Lipoids from Tubercle Bacillus, Strain H. 37. *J. Exper. Med.*, 52: (supp. No. 3), 1-152, Dec., 1930.

Beside dosage another condition which influences the behavior of the tissue reaction is subsequent *repeated* deposits. If by a certain dosage the hilum and tracheobronchial lymph nodes become greatly enlarged, they become visible in properly made roentgenograms, especially when various oblique positions are used. They are represented on the plate as a widening of the mediastinum with a discrete edge, sometimes a half circle or crescent, oft-times presenting a serrated profile. The reaction of these lymph nodes is caseation, proliferation, fibrosis and lastly calcification which usually evinces relatively long duration of the infection but not always a completely healed stage.⁸

The density caused by the enlarged uncalcified mediastinal lymph nodes constitutes one quite characteristic roentgen sign of unhealed primary infection type of pulmonary tuberculosis (figs. 4 and 5). Months or years later the calcified stage comprises another sign.



Fig. 4. Actively involved tracheobronchial lymph nodes with no parenchymal evidence of disease. The most common roentgen sign of active primary pneumotuberculosis. See also figs. 3 and 5.

Moderate dosage (including virulence) generally does not at once affect the nonallergic lung sufficiently to produce roentgen signs at the *parenchymal* point of deposit because the usual effect is circumscribed, proliferative only, and sluggish in development. The only parenchymal result from a



Fig. 5. Disseminated or miliary tuberculosis. Fine mottling throughout all lobes. It seems a dose of bacilli can be so huge that the lymph nodes, seen in upper left mediastinum, cannot control the infection. It passes through and reaches the blood stream.



Fig. 6. Child 20 months old. Here repeated dosage has resulted in inflammation at the site of the primary infection in the left lower lobe and epituberculosis right upper. See fig. 7.

dose of this size is a small so-called Ghon tubercle with limited caseation, fibrosis and in months or years calcification. The reaction may be so minute that it only presents roentgen evidence in the calci-

8. Opie, E. L.: Significance of Advanced Tuberculous Infection of School Children. J. A. M. A., 95:1151-1158, Oct. 18, 1930.

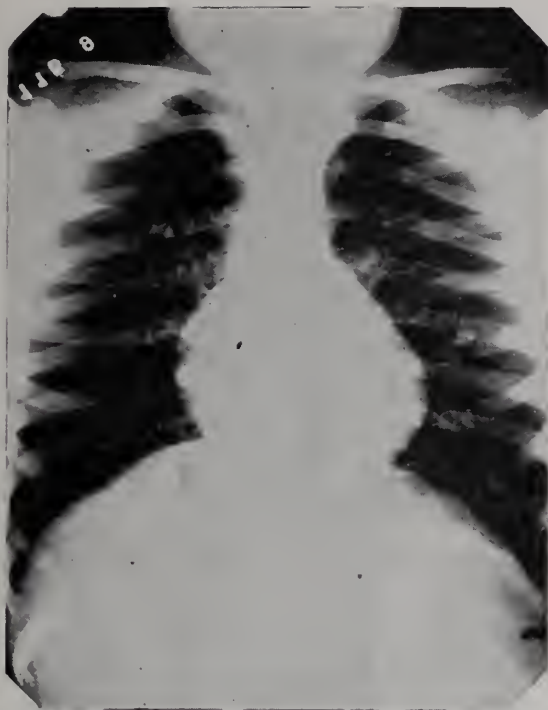


Fig. 7. Compare with fig. 6. Same child now 6 years. The primary Ghon focus in left lower lobe shown as hazy density at 20 months has become calcified. The right upper lobe shows no parenchymal residue, thus confirming the epituberculosis shown in fig. 6. The right tracheobronchial lymph nodes then actively involved and around which the epituberculosis formed are now calcified.



Fig. 8. One or two isolated intensified trunk shadows, as in this case, are much more likely to be evidence of primary tuberculosis some time in the past than a large number, especially when the numerous ones are symmetrically distributed.

fied stage (figs. 6 and 7). Microscopic evidence is probably always present.[†]

When the nonallergic lung receives a very large or highly virulent dose of tubercle bacilli, despite the great tendency to hurry these mycobacteria toward the hilum lymph nodes, they may, by sheer numbers and ultimate tissue reaction, produce

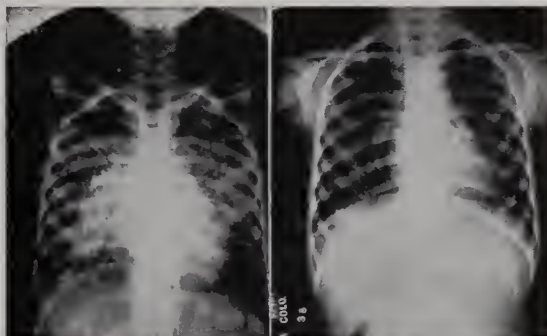


Fig. 9. Two cases of typical disseminated or miliary tuberculosis. See also fig. 5.



Fig. 10. Typical tuberculous pneumonia. See also fig 11.

enough blockage to prolong their stay in the peripheral lung and minor lymphatics.⁹ Since some degree of allergy probably develops in the human organism in two or three weeks, it may cause roentgen manifestation, characterized by a localized hazy density in the deposit area (fig. 6). There may also be later visualization of the trunk shadows leading from the Ghon region to the hilum lymph nodes (fig. 8). These constitute additional signs of first infection or so-called childhood type tubercu-

Another result may ensue from a huge dose. It may so overwhelm and penetrate the major lymph nodes that it enters the blood stream through the thoracic duct or by erosion into a vein, and thereby reaches the lung parenchyma (and other organs of the body) in the form of myriad deposits of minute collections of organisms which produce the familiar mottled roentgen sign of miliary or dissem-

[†]Conversation with Dr. Wm. C. Johnson, Professor of Pathology, University of Colorado.

9. Krause, A. K.: Studies on Tuberculous Infection; Summary, Analysis and Application of Studies on Tuberculous Infection. *Am. Rev. Tuberc.*, 14:271-305, Sept., 1926.



Fig. 11. Extremely heavy dosage and perhaps repeated dosage may cause tuberculous pneumonia. In children under one year this is often accompanied by cavitation and death, as in this case.

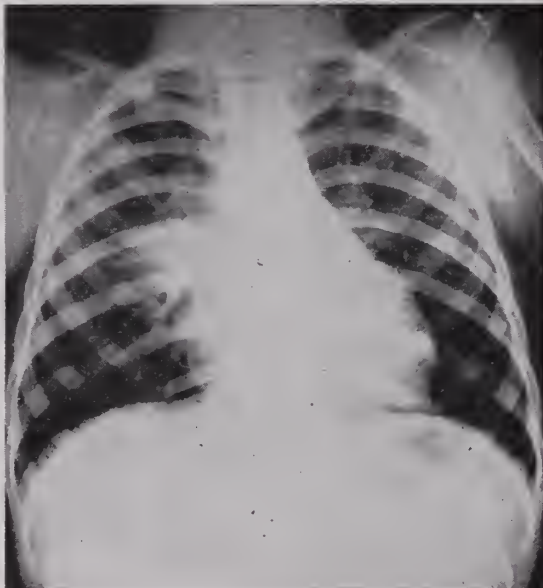


Fig. 12. Epituberculosis. Soft infiltration in the vicinity of lymph nodes already involved, probably allergic response to repeated doses of tubercle bacilli.

inated tuberculosis (fig. 9). This is characterized by symmetrically distributed areas of haziness of varying density, round in shape and of uniform size. The very minuteness of the infecting material in each area may account for the absence of roentgen evidence of inflammation (allergic) around these small collections of tubercles.³

A still larger or frequently repeated dosage may generate sufficient allergy to cause such marked

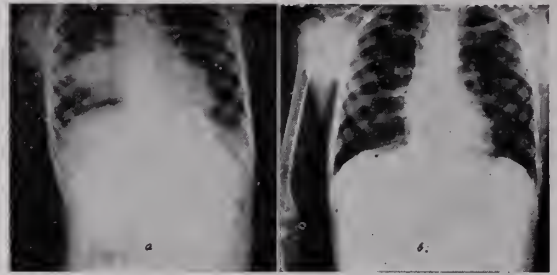


Fig. 13. a. Epituberculosis in the vicinity of actively involved nodes. b. Some months later. No remaining evidence of epituberculosis. One or two intensified trunk shadows evidence the route of the primary infection to the hilum, previous to the formation of the epituberculosis. The Ghon region did not calcify.

exudation that by air displacement it will show in the roentgenogram as a homogenous density, termed tuberculous pneumonia (fig. 10). This is less prone to conform to a lobe than the acute pneumococcic type. There is formed, therefore, a further roentgen sign of one form of primary tuberculous infection.^{††} When this reaction takes place in infants under one year it often proceeds to cavity formation and death (fig. 11).

Epituberculosis, so-called, has definite roentgen characteristics (figs. 12 and 13). When an organism continues to receive repeated doses of tubercle bacilli, whether deposited into either lung field or elsewhere in the body while the hilum lymph nodes are actively infected with a previous dose of tubercle bacilli, diffuse allergic exudation may displace some of the neighboring parenchymal air in the perihilar regions, reaching even to the periphery of the lung in severe cases.¹⁰ In a tuberculous child, therefore, haziness of varying extent and density surrounding the roentgen image of hilum or tracheobronchial lymph nodes which in serial plates disappears in weeks or months without residual signs of disease, should be interpreted as epituberculosis. This is another roentgen sign of one form of primary tuberculosis. The distinctive characteristics are again probably the result of variation of dosage.

Thoughtful analysis of large numbers of roentgenograms discloses strong evidence that the allergic mechanism believed to produce the manifestations called epituberculosis is so sensitive that an intracutaneous tuberculin test can cause haziness in the region of actively infected lung tissue, visible on roentgen films made at certain intervals after the skin test (figs. 14 and 15). If tuberculin will

^{††}Tuberculous pneumonia in children differs from acute lobar pneumonia by not only being less prone to conform to a lobe, but the roentgen shadow develops much later in relation to the onset of symptoms and persists longer. It is accompanied by less severe symptoms and lower blood leucocyte count than is the acute form.

10. Cameron, H. C.: On Epituberculosis. *Guy's Hosp. Rep.*, 82:290-296, Oct., 1932.



Fig. 14. Adult type tuberculosis in child 13 before tuberculin test. See fig. 15. Case of W. Wiley Jones, M.D. Tuberculosis Dispensary, Denver General Hospital.



Fig. 15. Same case as fig. 14 just after the child has been tested by tuberculin. There is now an allergic infiltration around the area of unhealed tuberculosis.

cause roentgen manifestation which assumes the proportions of epituberculosis, is it not logical to assume that a child in whom the roentgenogram evinces epituberculosis, and who has not recently been tuberculin tested, is being subjected to some form of tuberculo-protein? Does not this roentgen sign alone demand that every known measure be instituted immediately to break contact with any exogenous source of tuberculous infection?

To recapitulate, the only dependable roentgen signs of all variations of the childhood type, primary or first infection of pulmonary tuberculosis,

are: (1) mediastinal widening by enlarged lymph nodes (late effect calcification), (2) haziness or calcification (late effect) in the lung periphery at the primarily infected site (Ghon), (3) one or more thickened trunk shadows leading to the hilum region (moderately late effect) (4) discrete circumscribed soft densities, round in shape, symmetrically distributed throughout both lung fields, caused by blood stream dissemination of the mycobacterium (miliary tuberculosis), (5) a homogenous hazy density involving the parenchyma in the neighborhood of actively infected lymph nodes or lung tissue (epituberculosis), (6) a homogenous density of great radiopacity involving a part of a lobe or more but not strictly conforming to a lobe (tuberculous pneumonia). The shadow in the roentgenogram appears late and develops slowly after the onset of relatively mild symptoms, and it disappears very slowly. Cavitation or resolution may ensue. Table I shows the probable relationship of dosage to those roentgen signs.

ADULT TYPE OR SECOND INFECTION TUBERCULOSIS

Serial radiologic studies of a group of cases each begun in infancy and periodically irradiated until late childhood present convincing evidence that the first tuberculous infection of the lung quickly reaches the hilum lymph nodes with a minimum of parenchymal involvement.[‡] It is true that allergy with its parenchymal manifestations may in the primary infection eventually play a part in the production of the clinical and roentgen pictures. However, in primary tuberculosis the infection is present for a definite period of time *before* allergy is present. Still more convincing is the roentgen evidence that in adult type tuberculosis the infection is deposited *after* the establishment of the allergic state and, therefore, it remains in the lung parenchyma.

Many investigators^{3,4,5,6} have produced experimental evidence that this is the result of fixation of the bacillus at the point of deposition in the lung by allergy, and that the allergic state established by the first infection, excited by the tuberculo-protein of the new infection, is manifested by inflammation. Evidence gained by roentgen study strongly supports this conception. A study of plates, coordinated with the clinical course, laboratory and autopsy findings, indicates that early adult type tuberculosis causes diffuse lobular infiltration in the parenchyma which is imaged on the film by varying degrees and extent of opacity (fig. 16). The infection is no

[‡] Child Research Council, University of Colorado Medical School. Serials initiated by Dr. W. W. Wasson.

TABLE 1

Relation of Infecting Dose to Lung Tissue Reaction as Shown By Roentgen Ray

<i>Roentgen Signs of Primary Pulmonary Tuberculosis</i>	<i>Dosage Modification (Exogenous or Liberated Endogenous)</i>	<i>Roentgen Evidence of Allergy</i>
No signs.	Small dosage.	None.
Wide mediastinum; profile of enlarged lymph nodes.	Moderate dosage.	None.
Hazy area in region of primary focus; one or two thickened trunk shadows leading to hilum region.	Large dosage or repeated dosage (including virulence).	Slight.
Multiple small uniform round parenchymal shadows; symmetrical in all lobes of both lungs (disseminated).	Huge dosage, passing through lymphatics to blood stream, or the breaking of small deposit directly into the blood stream.	None.
Patchy localized parenchymal densities sometimes followed by cavitation. Tuberculous pneumonia.	Large possibly repeated dosage (including virulence).	Definite.
Perihilum hazy density of varying degree and extent (epituberculosis).	Repeated dosage while lymph nodes are actively infected.	Definite.

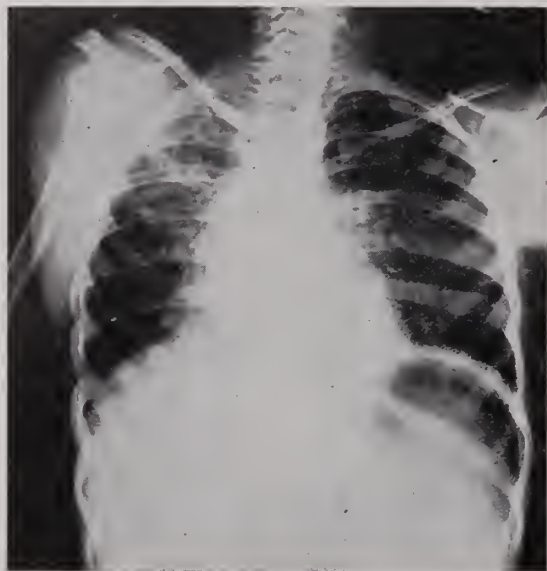


Fig. 16. Adult type tuberculosis in child 6 years old.

in the manner of a closing fan. They become more discrete as fibrosis causes them to become narrow and more visible. The more refined our technic becomes, the more often the roentgen ray is used and the more the interpretation is based upon a knowledge of the underlying pathology, the earlier will the adult type of tuberculosis be disclosed and the higher will be the percentage of disease discovered in the children studied. Early diagnosis is important because, next to prevention of infection, the most important step in the health management of children is the early discovery of the adult type of tuberculosis. Removal of (or from) exogenous sources of infection and treatment directed toward preventing excessive release of endogenous dosage at this stage may be life saving.

If the findings just described as denoting early adult type tuberculosis are accompanied by the roentgen signs of previous childhood type, the evidence points still more strongly to their tuberculous nature. However, the absence of first infection signs does not exclude adult tuberculosis as the cause of the roentgen signs.

The roentgen signs of later adult type of tuberculosis are more vivid. The film images seem to correspond more accurately to the underlying pathology than those of the childhood type. In cooperative children, with the best roentgen equipment and technic, very small lesions can be disclosed and minute changes in the manifestations of disease already discovered can be depicted.

Recent literature includes increasing numbers of cases of the adult type in children between the ages of four and fifteen.^{11,12,13}

11. Karan, A. A.: Adult-type Tuberculosis in Children. *Am. Rev. Tuberc.*, 26:571-582, Nov., 1932.

12. Gibson, C. B. and Carroll, W. E.: Parenchymal Pulmonary Tuberculosis in Children. *Am. Rev. Tuberc.*, 15:665-680, June, 1927.

13. Chadwick, H. D.: Discussion on Paper by Dr. W. L. Rathbun. *Epidemiological Basis for Control of Tuberculosis Among Children. Nat. Tuberc., A. Tr.* 25: 278-285, 1929.

longer carried to the hilum lymph nodes. If the lesions gradually subside and fibrous tissue forms, this is identified by discreteness and density. Serial plates indicate that all gross evidence of disease remains in the parenchyma.

In properly made stereoscopic roentgen plates the early stage of these lesions presents hazy areas^{††} with a third dimension which projects stereoscopically into the lung tissue, most commonly localized in the region of the second interspace but also occurring in any part of the lung. They constitute a roentgen sign of early, unhealed, true adult type of pulmonary tuberculosis. A lesion of this type is sometimes termed a Dunham's fan. This name seems appropriate in favorably progressive cases, especially if verified by serial roentgen examinations. Their diminution in size sometimes proceeds

^{††}Only assuming the typical "V" shape when in a part of the lung where they are presented laterally toward the roentgen tube.

In serial studies unfavorable progression of an early adult type lesion is indicated by an increase in the size of the roentgen image of the softly infiltrated area and by increasing opacity of the original site, but without the discrete margins caused by limiting fibrous tissue formation. These are the roentgen manifestations of a progressive exudative reaction. It becomes visualized because the exudate displaces air in the lung structures. The manifestations in each case depend on the period of infection, severity (virulence and size) of dosage and the degree of allergy.

Older lesions present the varying dark and white areas caused by honeycomb cavities, some of which contain only air and others exudate. Thin walled, larger excavations may be followed by thickening of their walls. Larger cavities may be partially filled with fluid, presenting the telltale "fluid level" in plates made in the erect posture. Violent allergic inflammation may in some cases block bronchioles or even bronchi, permitting the formation of areas of atelectasis¹⁴ which may be extensive enough to require compensatory mediastinal displacement for the air absorbed from the lung areas supplied by the obstructed bronchi. If fibrous tissue forms in or around these atelectatic areas, it may permanently prevent the displaced mediastinal structures from returning to their normal positions. This displacement of structures constitutes a dramatic roentgen sign of advanced adult type tuberculosis. The overlying pleura frequently participates in the inflammatory exudation with resulting effusion, thickening or both. The adult type of tuberculosis presents the same roentgen signs in children as it does in the adult patient, but these manifestations are easier to visualize clearly in the cooperative child.

PRACTICAL CONSIDERATIONS

An extensive study of roentgenograms depicting tuberculosis in children, if conducted in the light of the underlying anatomic and physiologic pathology, presents insistent evidence that infection by the mycobacterium tuberculosis of the lung of an uninfected child, if not overwhelming is not an *immediately* serious condition because in most cases above one year of age it is quickly overcome. Such a study further indicates that the infection promptly and easily reaches the major lymphatic system of the lungs.

Good films of tuberculous children also furnish evidence that the first infection may *later* become a very serious matter, if the child is reinfected. One danger is that the primary lesion may be the

source of the reinfection as well as the cause of a disturbing allergic reaction. Now the deposit in the lung field cannot reach the central lymphatics. Whether or not some degree of immunity is established, cases followed by roentgenography present evidence that a *parenchymal* lung disease of serious type is incited and that cure is uncertain, and at best is a long and precarious procedure. The agents which vary the roentgen manifestations and the outcome of the adult type of this disease are: (a) size of dosage, (b) intensity of allergy, (c) status of immunity, (d) the time between infections (influencing allergy and immunity),¹⁵ (e) treatment of patient.

A summary of findings in large numbers of lung roentgenograms of tuberculous children of both primary and adult type justifies an opinion concerning the final outcome of each type. A high percentage of the many cases of primary infection presents evidence of a *healed* or at least an inactive state. Among the fewer but increasing number of cases of the adult type of tuberculosis in children, which are presented for a roentgenologist's opinion, *most* appear to be *unhealed*. Although there is abundant experimental evidence that a primary infection endows a definite immunity, the evidence furnished by roentgen examination strongly contends that tuberculous infection in children incurred after the establishment of the allergic condition is more serious than infection when it is not present. Perhaps experimental information now accumulating will outweigh this conception and teach how to use immunity to overcome the adult type of disease.

SUMMARY

1. The roentgen signs of first infection type of pulmonary tuberculosis in children have been described and are related to underlying pathology.
2. The possible effects of a varying dosage of the mycobacterium tuberculosis on these roentgen signs has been charted.
3. The roentgen signs of adult type of pneumotuberculosis in children have been briefly described.
4. Roentgen evidence that children should always be protected from any exposure to tuberculosis has been presented.
5. Roentgen evidence is presented that second infection is more serious in children than the primary type; that for the time at least, until it can be controlled, children should be rigorously guarded from primary infection as well as after allergy is established.

14. Sewall, H.: Pulmonary Atelectasis as Source of Confusion in Physical Examination of Chest. *Am. Rev. Tuberc.*, 4:811-827, Jan., 1921.

15. Sewall, H., and Allen, K. D. A.: The Relations of Allergy and Immunity in a Clinical Case of Pulmonary Tuberculosis. *Amer. Rev. Tuberc.* 30:607-618, Dec., 1934.

THERAPEUTIC VALUE OF VACCINE IN ACUTE AND CHRONIC RESPIRATORY DISEASES

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LYNDEN, WASH.

For many years the various manufacturers of biologic products have manufactured and sold stock prophylactic vaccines prepared from various bacteria found in the usual respiratory diseases. Rarely has any mention been made in the literature of the marked therapeutic value of such vaccines in the treatment of acute and chronic diseases of the respiratory tract. For this reason it seems that very few physicians are cognizant of the great value of a good vaccine in aborting or promptly relieving many of these conditions.

My attention was directed to this form of therapeutics in a very personal way and the results obtained when I was advised to try it experimentally were so striking that they seemed almost miraculous. As a result I was induced to continue to experiment with it in various acute and chronic conditions involving the respiratory tract.

My youngest son, then twelve years of age, had contracted asthma following measles and pneumonia in his fourth year. His was a very trying and difficult case, since his attacks were frequent and severe and the remedies usually effective in such cases were practically of no avail. Suprarenal extract was without effect, as was stramonium. Atropine orally or hypodermically was slightly beneficial and it and elimination seemed to be the only means available to relieve and shorten the attacks. As is often the case, there was an hereditary influence, a great aunt and an uncle having been sufferers from this disease.

During the fall following the boy's twelfth birthday, the attacks were unusually frequent, severe and prolonged, so that he was absent from school more than half of the time because of them. Finally, a colleague suggested that I try a stock mixed respiratory vaccine and, although I had little faith in this or any other vaccine except, perhaps, as a prophylactic agent, I decided to try it. The results were no less than miraculous, for, following the first injection of the vaccine, there were no more attacks, and there never have been, although nearly twelve years have elapsed. Naturally I continued the treatments every second day and increased the dosage two minims at each injection until it reached one cc. Following this dose there was a slight attack of wheezing lasting about fifteen minutes, so that thereafter I never exceeded a 12-minim dose in this case.

For two weeks I administered the vaccine every second day; then extended the period to twice weekly for perhaps three months. After that I administered it once a week for six or eight months and from that time forward for several years I administered a dose of ten minims at the first sign of the onset of a cold or other form of respiratory infection. In this manner the patient was kept free from asthma and incidentally from all other forms of respiratory disease of more than twelve hours duration. The treatment was so effective that for the six years following its inception, or until the completion of his high school course, he was never again absent from school and, more remarkable than this, during his senior year he joined the track team and won his letter in the 220 and 440 running events. From a pale, undersized, stoop-shouldered, barrel-chested invalid,

he became in a few weeks after the institution of this treatment a strong, active and extremely healthy boy and he has remained so to this day. While his growth had been retarded and stunted to some extent by his long illness, he became strong and athletic in type.

As I took note of the phenomenal results I was obtaining in this case, naturally I began to use the vaccine in other asthmatic cases and with much benefit in almost every one. The greatest difficulty was in inducing patients to persist in the treatments after they had become considerably improved. Patients of all ages from childhood to old age were treated with almost universal benefit. One man of 78, whom I had been called to treat during several severe attacks, was finally persuaded to take six or eight injections of the vaccine. Prior to this treatment he had for years been obliged to "smoke himself" with a stramonium mixture every night in order to be able to sleep at all. Following the vaccine treatments he was free from attacks for some time and more than a year afterward he told me that, while he was not entirely cured, he never had to use the stramonium mixture again.

My success in aborting ordinary colds, and even those attacks which could be dignified by the more pretentious appellation of influenza in my son, led me to experiment with the vaccine in other patients and I found it to be by far the most effective treatment I had ever used in acute respiratory diseases. During a severe epidemic of influenza, characterized by a severe onset with chills, high fever and general discomfort, I found myself one evening manifesting all of the symptoms of it. After the severe initial chill, followed by the other characteristic symptoms, I was convinced that I was threatened with a severe illness and absence from my practice, so I decided to try the vaccine on myself and see if it would abort the attack as I had seen it appear to do under similar circumstances in my son. I injected ten minims of the vaccine subcutaneously and awaited results. That night I had a high temperature and felt very ill but by morning the fever had subsided and, as I had much to do, I arose and attended to my practice as usual and without experiencing any further symptoms of the disease. Patients of mine during this epidemic, who had had the same initial symptoms that I had manifested but had been treated without vaccine, had been quite ill for several days.

During a similar epidemic later on, in which there was much deep bronchial and lung involvement, I administered an injection of the vaccine to every patient as soon as I saw him. Many of the cases that were seen early were ill only one day and none

of them developed bronchitis or pneumonia. During this epidemic I was able to compare my results with those of another physician who did not use the vaccine and I found that many of his cases were severely ill, several contracted pneumonia and at least two died. The number of cases treated by each of us was about the same. Since these results and observations were made in rural and village practice, and none of the patients were hospitalized, it was impossible to prepare more definite statistics. Nevertheless they should be convincing to all those not too deeply prejudiced against the curative value of vaccines.

My use of the vaccine has been extended to pneumonia and I have obtained what seemed to me to be phenomenal results in this trying disease. The first case in which I employed this treatment was a very fat boy of about eight years of age. On the fifth day of the disease his condition became critical, with high temperature, respiratory distress, a rapid pulse which was beginning to intermit and some cyanosis of the lips and finger-tips. Since I had not observed any untoward results whatever following the use of the vaccine in acute febrile conditions, I decided to try it in this case. Twelve hours after the first injection of six minims there was marked improvement in every respect and his condition continued to be favorable for thirty-six hours, when he began to relapse to his former weak condition. Another injection of eight minims was administered, after which there was marked and continued improvement and a gradual reduction of the temperature to normal by lysis.

In a case of pneumonia in a young man of twenty-two, recently seen by me, I was called soon after the initial chill. The temperature was 104 degrees, respiration 30 and pulse 110. There was very severe pain in the upper lobe of the left lung and the typical pink sputum of pneumonia was being expectorated. Physical examination corroborated a tentative diagnosis of pneumonia. The patient appeared to be in a severely toxic condition and I decided to administer vaccine at once. Ten minims were injected and I prescribed calomel and an alkalinizer. Twenty-four hours later when I called, I found the patient much improved. The pain was gone and all of the other symptoms were markedly relieved. After another twenty-four hours all symptoms had cleared up and the patient wanted to get up. Another recent case in a child four years old cleared up in a similar manner. My extended experience with this vaccine leads me to believe that, if given early, it will abort or greatly shorten the course of

most cases of pneumonia. I have had no deaths from acute respiratory disease since I began the use of the vaccine in all such cases.

Although I do not claim to have been the first to use this line of treatment in all forms of acute respiratory disease, the technic has been worked out by myself without any knowledge of what others may have done along similar lines. Recently my attention has been called to Sutton's report of work done in the treatment of pneumonia with stock vaccines at Cook County Hospital, Chicago, in 1926 and 1927 by Tice and others. In their work much larger doses of vaccine were given than those worked out by myself, even up to 1½ cc. every two to six hours. In view of the rather marked local and some systemic reactions I have observed following the doses employed by me, I see no necessity for such large and frequent doses. Sutton's report covered 381 cases treated with vaccine and 459 control cases. The mortality rate in the vaccine-treated cases was 24.1 per cent, while that of the controls was 38.5 per cent. In view of this excellent showing it is surprising that further tests have not been made and the results widely publicized.

There has been considerable conjecture in regard to the *modus operandi* of vaccines in the prophylaxis and treatment of acute conditions. Some hold that it is a true vaccine action with the formation of specific antibodies, while others believe it to be a simple nonspecific protein action. For various reasons I am inclined toward the former belief. Perhaps in time this will be worked out to the satisfaction of those interested, but so long as the vaccine continues to produce results like those I have thus far obtained with it, I shall not concern myself too much about the why and wherefore of its action.

My work has all been done with one vaccine, containing staph. albus and aureus, each 500 million, and streptococcus M. catarrhalis, pneumococcus, B. Friedlander, and B. influenza, each 200 million to each cc. The dosage worked out by myself has been that which I have found sufficient to bring about satisfactory results without causing severe constitutional reactions. I have observed only two of the latter, both in the same patient, a girl of twelve. In both instances the patient had called at my office for treatment late in the afternoon because of symptoms indicating the onset of a cold. Since she had had the treatment on several other occasions, I administered a little more than the usual dose. During the evening she had a severe chill followed by high fever and some delirium. There were no other untoward effects and the cold

was aborted in the usual manner each time. I have seen but one instance of anaphylactic reaction following the use of this vaccine. This was in an adult who had never received the vaccine before. The attack was of a minor nature and consisted of a slight skin eruption.

The initial dosage which I have found most satisfactory is 2 minims in small children and infants, 5 minims in those twelve years of age and 8 to 10 minims in adults. When the vaccine is administered every two or three days, I increase the dose 2 minims each time, depending to some extent upon the intensity of the skin reaction at the point of injection. To get the best results with this vaccine I believe there should be a good skin reaction, consisting of slight swelling, redness and tenderness over an area two to six inches in diameter. This reaction usually clears up in two days unless it is unusually severe. After employing many hundreds of these injections, I have yet to see any evidence of local infection or abscess following their use.

In treating asthma it may be necessary to administer the vaccine over a long period, the object being to keep the patient as free as possible from all evidences of the disease as well as from concurrent attacks of acute respiratory infections until he has built up a normal resistance to them. I have observed that in those patients complaining of nasal obstruction of the type called alternating stenosis, due to swelling of the turbinate bodies, the condition is often partly or entirely relieved by the use of the vaccine. Since this condition seems in many instances to be a part of the asthma-hay fever complex, it is not surprising that the vaccine is beneficial.

Some physicians are obtaining excellent results with this vaccine in the treatment of hay fever. Boynton of Bellingham has personally stated to me that he has been very successful in its use but claims that he has to employ much larger doses in this disease than in asthma. He recommends up to 2 cc. repeated every three or four days. I have not had an opportunity to use it in this disease.

COMMON COLDS

THEIR RELATION TO RESPIRATORY INFECTIONS AND BACTERIAL VACCINE IMMUNIZATION*

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Most writers fail to say just what they mean by the term but nearly all agree that many forms of

serious respiratory infections escape early diagnosis and proper treatment behind the masked phrase "common colds." The substance and discussion as well as general construction of this paper are based on deductions arrived at after analyzing the records of my clinical and laboratory observations and correlated matter gathered from recent literature, and more especially articles by the following well known authorities: Cecil, Rosenau, Russell, Park, Wright, Fleming, Clemenger, Dick and Dick, and Dochez.

It is obvious that much of the literature on this subject is based on generalized supposition and imperfect interpretation of the facts at hand. The fact that at present the exact significance of even the most scientific demonstrable facts cannot always be fully interpreted by some observers does not mean that a great progress has not been made. After scanning some of the voluminous literature on the causes and prevention of common colds and respiratory infections, after comparing the opinions and claims of some of the best known American and the English observers, and their extensive experimental work with my somewhat limited observations during the past two decades, I am trying to evaluate such data that seem most progressive. I hope I may be at least partially successful in bringing to the attention of the medical profession some useful hints.

It seems the consensus of opinion strongly indicates that primary common colds are not caused by bacterial organisms but that the conditions usually called colds are predisposing factors to many forms of respiratory infections. The nonbacterial causative factors of colds will be discussed later. It appears that, in trying to solve this big problem of preventive medicine, many of the workers have been and are now searching for some mysterious causative organisms and overlook or ignore many of the important facts and factors at hand.

In my search for a satisfactory definition and description of the term common cold I cannot find any more suitable than that by Cecil in his recent textbook, but I shall try to prove that his definition of pathology and symptomatology fit the conditions and disorders that many observers term respiratory infections instead of common colds. The symptoms as well as the pathology of common colds and some of the many forms of respiratory infections are so nearly alike at certain periods of development that it is no wonder there exists so much confusion about the differentiation and entity of the two conditions.

Cecil says: "The common cold is a catarrhal inflammation of the upper respiratory tract which re-

*Read before a meeting of Whitman County Medical Society, Colfax, Wash., Dec. 3, 1934.

sults from infection by a filterable virus or by microorganisms and perhaps from other causes not yet definitely determined." To this I make two exceptions: first, the word "catarrhal" is misleading and ambiguous; second, while coryza often accompanies common colds, it is not always caused by filterable virus or bacterial organisms.

It is a known fact to many observers that non-purulent acute coryza can be brought on by many nonbacterial factors, some of which are sudden exposure to rapidly varying temperatures, irritating dust, gases, odors and smoke. Coryza is one of the most constant symptoms of nonbacterial colds. The smears and cultures from persons suffering from primary colds with coryza do not contain pathogenic organisms and usually no rise in temperature until a secondary condition, the respiratory infection, develops.

When an irritation of the upper respiratory tract from any cause is prolonged, the secretions excited by the hyperemia and vasomotor disturbance become an excellent medium for incubation for organisms already there or those that can be picked up from various contacts during the primary attacks of colds. The pathology usually found in these primary colds is not a true inflammation; it is hyperemia and edema. Persistent hyperemia favors edema and tissue trauma. Trauma of the deep tissues permits absorption of bacterial toxins and the bacteria that are being cultured in the edematous tissues of the respiratory tract. Such condition favors many forms of respiratory infections, including pneumococcal pneumonias in the nonimmunized individuals, whereas the immunized escape infection.

My observation, both clinical and laboratory, indicate that an active immunity against most of the respiratory infections can be built up and maintained by the periodic inoculation with properly selected and suitable dosage of mixed bacterial vaccines. The duration of active immunity against the respiratory infections varies greatly, some individuals needing vaccine inoculations every thirty days, while some persons can be immunized in the early fall and retain from 70 to 90 per cent immunity for the whole season.

Under epidemiology Cecil says: "In our schools the students are closely associated in class rooms, where various kinds of bacteria of the respiratory tract are readily disseminated throughout the group where the virulence of some of the organisms can be greatly enhanced as they are transferred from one nonimmune subject to another." It seems to me it must be obvious to all who observe this subject

closely, that the situation and condition Cecil discusses under common colds are in reality the usual form of respiratory infection. The statistical data indicate that the school population can be immunized against nearly all of the mixed respiratory infections, including pertussis. But we cannot immunize successfully for the prevention of the non-bacterial forms of colds. But why worry about not being able to prevent colds, when we know that the serious disorders resulting from them are the respiratory infections and we know they are preventable?

At this point it is in order to answer the question, "how is influenza related to colds and to some of the respiratory infections?" It is generally agreed that, in the absence of an epidemic, influenza is nearly always diagnosed by the laity and sometimes by the physicians as "just a cold or only a cold." I recognize two forms of influenza, the epidemic form that is caused by some filterable virus in which the respiratory bacteria take no part, and the endemic form caused by Pfeiffer's bacilli. It is the latter that is so often called "just a cold." This form of influenza is frequently associated with some of the respiratory infections and is preventable in a large percentage of individuals. On account of its short period of immunity it is commonly called the relapsing cold. To this point I have hinted that common colds are not primarily caused by bacterial organisms nor by filterable virus and now I shall call attention to the most important nonbacterial causative factors. The most common are the seasonal weather and temperature changes. Very few people look ahead to prepare themselves and their homes for these conditions. Most dwellings are not regulated to meet the variations in temperature humidity and ventilation so as to approximate the normal conditions. Even the matter of clothing most suitable to the changing temperatures is ignored or neglected by the majority of people.

Another contributory factor is the common habit of overcrowding or overtaxing the normal physiologic capacity. Some people, and especially most of the school population, crowd too much into their schedules. They get too many irons in the fire at the same time. Of course, most people know but they keep forgetting the fact that the activities of any vocation, whether it be earning a livelihood or just a pleasure, should be carefully arranged and limited to one's capacity of endurance. Yet the power of endurance can and should be gradually built up to the highest degree possible in any individual case. The factors just enumerated make up

the common factor of great importance. When the animal body is subjected to an abnormal degree of body heat irregularity, there occurs a varying degree of an unbalanced physiologic chemistry in the tissues and in general circulation. This throws out of commission many normal blood defenses.

But let us bear in mind the fact that this unbalanced blood chemistry is not a causative factor of a disease against which one has been immunized. In the immunized individual the varying degree of leucocytosis does not affect the value of immunity. For instance, a person fully immunized against diphtheria does not contract it on exposure to it, even though the phagocytic power be diminished. So the nonbacterial causative factors of common colds would do much less harm if we immunized against the immunizable respiratory disorders and diseases.

In nonimmunized individuals the allergy or hypersensitivity is constantly waging war against nature's attempts to build up immunization. Hence, it should not leave any doubt in one's mind that bacterial vaccines are the most promising and logical factors of prophylaxis.

One question commonly asked is whether it is not more scientific to employ autogenous or single specific bacterial vaccines instead of stock preparations of mixed respiratory vaccines. The answer is, no. Our purpose in immunizing against the multiple forms of respiratory infections is to prevent or at least minimize the severity of any one of the several kinds of disorders that can develop within a month or a year of the time of the immunizing inoculation. The antibodies of all the types are usually represented in the mixed vaccines, whereas only one or two species of the organisms could be obtained and isolated in many of the individuals who are seeking immunization against possible mixed infection at the time of taking the specimens. Among other things we are interested in the prevention of pneumococcal pneumonia.

Under the head of prophylaxis in pneumonia, Cecil and Plumer say that the surest way of preventing pneumonia would be to eliminate the common colds and other mild respiratory infections. Farther on, under the same head, they say: "It is possible to vaccinate both animals and man against pneumococcal infections but the immunity conferred by the pneumococcus vaccine is comparatively short duration, probably less than one year." This statement is in accord with the finding of several leading American and English observers, and corroborates my contention that pneumonia is pre-

ventable by immunization with either the pneumococcus or the mixed bacterines about every six months.

I am aware of the fact that many of our medical profession, men who are too busy along different lines, contend that vaccination against respiratory infections is as yet in an experimental stage. I see evidence on all sides that this subject is understood better every year and I fully believe that in the near future vaccination against respiratory infections, including pneumonia, will gain and earn full recognition the same as typhoid and paratyphoid vaccination and diphtheria and scarlet-fever toxoid and serums.

I wish to emphasize certain outstanding points; first, I am again calling attention to the fact that many serious diseases, including pneumonia, go undiagnosed and untreated until considerable harm has been done, by permitting the much used phrase, common colds, to be employed too loosely.

Also I call attention to the fact that much misunderstanding and dissatisfaction are permitted to exist by letting the general public believe that the regular medical profession advises bacterial vaccines for common colds. Is it any wonder the people spend millions of dollars yearly for patent medicine cold cures?

I am sure that both the general public and the medical profession would profit if we face the facts and tell the people we do not vaccinate for prevention of common colds but strongly recommend immunization with bacterial vaccines for prevention of respiratory infections, including pneumonia and pertussis. We should also explain to our patients that by preventing acute respiratory infections and the cure of chronic disorders such as pharyngitis, sinusitis and bronchitis, we eliminate or at least reduce the frequency and severity of the usual common colds.

The general public as well as patients should be properly informed of the fact that preventive immunization is not a magic and that we must not expect miracles, that immunization had better be done while the individual is in his usual normal condition of health, that a health check-up, including bacteriologic findings, should be done before commencing the inoculations.



HORSESHOE KIDNEY AND THE GENERAL SURGEON*

WITH REPORT OF CASE

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When the symposium of the American Urological Association was held in 1930 in honor of von Lichtenberg and for the purpose of comparing results after one year's experience with his new intravenous method of urography, one of the points brought up by Bugbee¹ during the discussion was that harm might result from intravenous urography in the hands of general surgeons and practitioners. Because of the ease with which it can be used (intravenous injection without ureteral catheterization), it was feared that it would be employed by those not well trained in urology and that their interpretations of the urograms often would be incorrect. Although urograms were made in the case here reported, the diagnosis of horseshoe kidney was not made until at operation.

The general surgeon not infrequently and the urologic surgeon occasionally are still taken by surprise when at operation the developmental anomaly of horseshoe or fused kidney is revealed. The surprise is now less frequent for the urologic surgeon than the general surgeon, because the urologist has learned to be on the alert for the anomaly. He suspects a horseshoe kidney when the pyelograms show lack of external rotation, or imperfect rotation, of the renal pelvis and calices. However, the urologic surgeon is even now occasionally surprised at operation.

HISTORICAL

The anomaly of horseshoe kidney has been recognized since the earliest days of medical literature. At first such kidneys were found only in the dissecting room or at the autopsy table. Later, with the development of modern surgery, they were found with an increasing degree of frequency. These findings were quite by accident in the course of operations for intraabdominal or urinary tract pathology. Since 1906, the beginning of the era of urography, the preoperative diagnosis of horseshoe kidney has been made more frequently.

INCIDENCE

The actual incidence of horseshoe kidney has been variously reported. Carrier and Gerard² in

68,989 autopsies found 80 horseshoe kidneys; Motzfeld³ found 92 cases in 73,489 autopsies; Morris⁴ found 30 cases in 21,218 autopsies; Naumaun⁵ in 10,177 autopsies found 17 cases; Davidsohn⁶ found 6 horseshoe kidneys in 6200 autopsies; and Jeck⁷ found 26 horseshoe kidneys in 16,735 autopsies. The incidence would be approximately once in 700 to 800 autopsy cases. Judd⁸ reports finding 17 cases of horseshoe kidney in 2,424 operations on the kidney performed at The Mayo Clinic, while Keyes⁹ found 4 cases in 250 operations for renal disease.

EMBRYOLOGY AND PATHOLOGY

Reynolds and Howard¹⁰ define horseshoe kidney as a congenital malformation, in which two similar poles of the kidney are connected in front of the vertebral column. In most cases the kidneys occupy a portion median and caudad to that of a normal kidney. Rokitsansky¹¹ says that the more complete the fusion, the lower is the position of the kidneys. The majority of horseshoe kidneys are located in the lower lumbar region. Not uncommonly the superior pole is found opposite the second or third lumbar vertebra. At times the entire renal mass is freely movable, but in most cases the isthmus is fixed. Due to the fusion and lack of rotation, there is deformity of the pelvis and the calices are generally confined to the middle and upper portions of the renal mass. The isthmus is characteristic and may vary from a thin fibrous cord to a solid mass of parenchymatous tissue. Often there is a plainly visible sulcus indicating the line of junction of the kidneys. In the majority of instances fusion occurs at the inferior poles (fig. 1). Of 262 cases, Beyer¹² found only 18 in which the isthmus connected the superior poles. In cases of fusion of the inferior poles, the isthmus usually crosses the fourth or fifth lumbar vertebra about the level of the aortic bifurcation, and in the majority of cases it passes in front of the great vessels.

Although there is no regularity in the blood sup-

3. Motzfeld: Quoted by Eisendrath, Phifer and Culver (vide infra).

4. Morris, Preinelsverger and Socin: Quoted by Keyes (vide infra).

5. Naumaun, H.: Ueber die Häufigkeit der Bildungsanomalien der Nieren, Kiel, 1897.

6. Davidsohn, C.: Ueber die Hufeisenniere. *Charité Ann.*, 26:509-515, 1912.

7. Jeck, H. S.: Horseshoe Kidney with Especial Reference to Surgical Technic. *J. A. M. A.*, 98: 603-609, Feb. 20, 1932.

8. Judd, E. S., Braasch, W. F. and Scholl, A. J., Jr.: Horseshoe Kidney. *J. A. M. A.*, 79:1189-1196, Oct. 7, 1922.

9. Keyes, E. L., Jr.: Urology. D. Appleton and Company, New York, London, 1928.

10. Reynolds, L. R. and Howard, N. J.: Pelvic Leukoplakia in Horseshoe Kidney. *J. Urol.*, 30:653-664, Dec., 1933.

11. Rokitsansky, C.: A Manual of Pathological Anatomy. London, Sydenham Society, 2:185, 1849.

12. Beyer, C.: La rein en fer a cheval. *Arch. internat. de chir.*, 5:517-601, 1912.

*From the Surgical Service, U. S. Marine Hospital, San Francisco, Calif.

1. Bugbee, H. G. and Murphy, A. J.: Value and Limitations of Uroselectan as an Aid in Urological Diagnosis. *J. Urol.*, 25:275-286, March, 1931.

2. Carrier, V. and Gerard, M.: Anatomie Chirurgicale et Chirurgie du rein en fer a cheval. *Rev. de chir.*, 46:9-51, 196-237, 1912.

ply of the horseshoe kidney, the renal artery comes from the aorta. The blood vessels are often multiple and frequently enter the hilus behind the pelvis rather than anteriorly. The arteries of the isthmus may come from the common, external or internal iliac or from the inferior mesenteric arteries.

Horseshoe kidneys do not produce symptoms unless there is some concomitant pathologic lesion. The unusual location and deficient pelvic drainage no doubt make them more vulnerable to disease and trauma. In two series of cases, one by Rokitansky and the other by Walters and Priestly,¹³ the most common associated lesions were calculi, hydronephrosis and pyonephrosis. Eisendrath,¹⁴ in a review of 132 cases, cites the frequency of pathologic conditions most commonly encountered in operations on horseshoe kidneys as follows: calculi, 51; hydronephrosis, 34; tuberculosis, 13; and pyonephrosis, 7.

PREOPERATIVE DIAGNOSIS

In a series of 108 cases reported by Rathburn¹⁵ in 1924, only 24, or 22 per cent, were diagnosed before operation. Of the 16 cases reported by The Mayo Clinic, 8, or 50 per cent, were diagnosed prior to operation. Judd states that it may be very difficult to make a clinical diagnosis of horseshoe kidney. As a general rule it may be said that in every case of abdominal tumor, a roentgen shadow or pain adjacent to the umbilical area should arouse suspicion of the possibility of a horseshoe kidney. A horseshoe kidney, unless abnormally enlarged, can seldom be recognized by abdominal palpation but is more likely to be palpated as a mass in the middle of the abdomen.

Because of the scarcity of definite clinical data suggestive of horseshoe kidney, clinical diagnosis of the condition is usually made only in the course of routine pyelography. The characteristic findings are the inverted relative arrangement of the calices and the true pelvis. Instead of lateral expansion of the calices there is a torsion (lack of normal rotation or partial rotation) of the renal pelvis, so that the calices extend in a median or cephalad direction. Also the ureteropelvic angle, which is

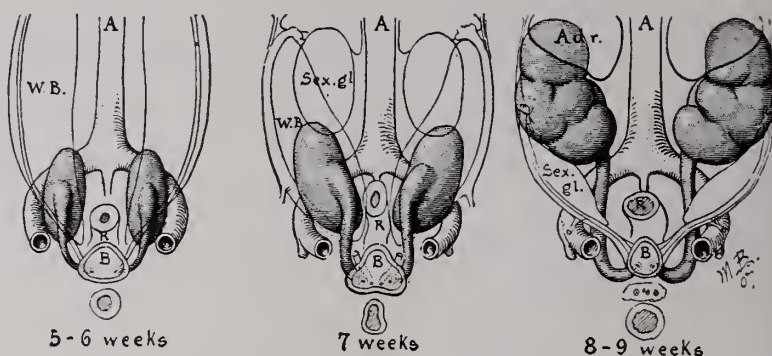


Fig. 1. Diagram showing the ascent of the kidneys out of the pelvis. Note how the first renal pelvis are in front, later turned toward the midline, finally turned posteriorly. Fusion of the lower poles at seven weeks produces horseshoe kidney. *Diseases of the Kidneys, Ureters and Bladder* (Kelly and Burnam. D. Appleton-Century Co., Inc., New York).

usually median to the pelvic outline, is situated at a lateral angle. Therefore, when the pyeloureterogram shows evidence of renal torsion, the possibility of horseshoe kidney should always be considered. When a stone shadow is median to the pelvic outline in the pyelogram, the possibility of horseshoe kidney is suggested.

Jeck gives the following urographic characteristics which should arouse one's suspicions of horseshoe kidney: (1) kidney pelvis which are closer to the midline and lower than those of normally placed kidneys, (2) shortening of one or both ureters, not otherwise explained, (3) a tendency of the calices to point downward or toward the vertebrae, (4) in stereoscopic urograms, an anterior curve of the ureters due to the passing of the ureters in front of the isthmus, (5) calices of bizarre shapes, absence of calices, or calices overlapping the pelvis, (6) bilateral roentgen catheter shadows which show a curve outward from and then inward toward the vertebral column at their upper extremity.

SURGICAL PROCEDURES ON HORSESHOE KIDNEYS

Surgical operations performed on horseshoe kidneys are more difficult than similar operations on normally placed kidneys, largely because they are less accessible and it is more difficult to see the structures. Rovsing¹⁶ suggests that the best exposure in operating may be obtained by the anterior transperitoneal incision. Although this is advantageous, Judd believes there are objections to this exposure, chiefly that of exposing the peritoneum to infection from kidneys more or less infected. He states it is difficult to expose a horseshoe kidney satisfactorily through a posterior incision and advises the conversion of this type into a posterior lateral incision. In removing stones the approach to the pelvis

13. Walters, W. and Priestly, J. B.: *Horseshoe Kidney; Review of 68 Surgical Cases.* *J. Urol.*, 28:271-277, Sept., 1932.

14. Eisendrath, D. N., Phifer, F. M. and Culver, H. B.: *Horseshoe Kidney.* *Ann. Surg.*, 82: 735-764, Nov., 1925.

15. Rathburn, N. P.: *Notes on the Clinical Aspects of Horseshoe Kidney.* *J. Urol.*, 12:611-626, Dec., 1924.

16. Rovsing, T.: *Bertrag zur Symptomatologie, Diagnose und Behandlung der Hufeisenkiere.* *Ztschr. & Urol.*, 5:586-601, 1911.



Fig. 2. Intravenous pyelogram, normal on right and bifid pelvis on left.

Fig. 3. In this pyelogram there is no shadow on the left, but on the right there is seen renal torsion with dis-

tortion of the pelvis and calices. Note the ureteropelvic angle. Compare this with the illustration shown in Fig. 4, a pyelogram of a horseshoe kidney. *Urological Roentgenology* (Young and Waters. Paul B. Hoeber, Inc., New York).

should be made anterior to the kidney instead of in the usual way. In performing heminephrectomy, the method of handling the cut-off end of the isthmus will depend on the accessibility and the amount of infection. If possible, the stump should be sutured over to control oozing and then covered by bringing the capsule over. In some instances it is best to control the isthmus with a clamp, leaving it in place for several days.

Jeck states that the operator who has preoperative knowledge that he is dealing with a horseshoe kidney is in a far better position to perform with facility and ease whatever operation may be necessary than he who stumbles on such a condition accidentally, particularly with reference to the surgical approach. He recommends the extraperitoneal approach and cites the advantage. He also enjoins the surgeon to bear in mind that one may mistake at operation a fused for a horseshoe kidney. He states that in contemplating heminephrectomy, the operation most frequently necessitated by the pathologic conditions found in horseshoe kidneys, the operator should first satisfy himself in regard to the following: (1) the function and size of the other half of the kidney, (2) whether or not the other kidney has its own separate ureter, (3) presence of accessory arteries and veins, (4) whether or not the kidney which is to remain has ample blood supply, (5) the size and composition of the isthmus.

CASE REPORT

W. M., married, white American male, C. W. A. worker, 31 years of age, was admitted to the United States Marine Hospital, San Francisco, Calif., February 6, 1934, complaining of "blood in his urine." His family and past histories were unimportant. He denied venereal disease.

The patient stated that on Feb. 1, while engaged in work,



Fig. 4. A pyelogram of a horseshoe kidney. *Urological Roentgenology* (Young and Waters. Paul B. Hoeber, Inc.).

he slipped and fell forward against the butt end of a pitch fork. He felt a severe pain in the left side, caused by the blow from the handle of the pitch fork which had struck him about two inches above left anterior superior iliac spine. He was disabled for a short while but was able to "finish out" the day. He rested the next day. On Feb. 3, he noticed blood for the first time in his urine. On Feb. 5 he went back to his work but soon noticed considerable blood in his urine. He was sent to the hospital the following day, at which time he was not aware of the abdominal mass and tenderness.

Physical examination showed well-developed male, ambulant and in no apparent distress. Temperature, pulse and respiration were normal. Skin and mucous membranes slightly pale. Heart and lungs normal. Blood pressure: systolic 170, diastolic 100. The abdomen showed no external signs of injury. With the patient supine there was dullness on percussion and a visible fullness in the left flank and abdomen. There was considerable tenderness over the entire abdomen, more marked on the left. Pressure over the right abdomen and loin caused pain in the left side. Palpation revealed a large mass occupying the entire left abdomen. The mass seemed to be confluent with the swelling in the left loin. The urine was brick red in color, due

to macroscopic blood. There was a slightest possible trace of albumin, and the sediment showed numerous red blood cells but no casts. Blood count: red cells 4,800,000; hemoglobin 89 per cent; white cells 11,000, with 60 per cent neutrophils and 40 per cent small mononuclears. His blood Wassermann was negative.

Urologic examination was as follows: Right ureter easily catheterized, left ureter catheterized for 20 cm. No drip from left but normal from right. Urine from right ureter showed on examination red blood cells. Pyelogram, Feb. 7, after intravenous injection of skiodan, is presented in Fig. 3.

Nonprotein nitrogen was reported as 90 mg. and urea nitrogen as 56 mg. per 100 cc. of blood. From these findings it was believed that patient suffered with a hematoma, perirenal and loin, left, of traumatic origin.

Following observation, exploratory operation was decided upon, which was done on Feb. 9, under spinal (spinocaine) anesthesia, supplemented by ethylene inhalation anesthesia. Character of operation was exploratory abdominal section followed by left loin section and primary heminephrectomy, left.

Operative Findings: Large mass left loin and abdomen. On abdominal section there is seen a large retroperitoneal cystic mass occupying entire left side of abdomen, confluent with upper pole of left kidney. Mass displaces descending colon anteriorly and medially to midabdomen. Right kidney is palpable and apparently enlarged one and one-half times. On loin section large cystic mass is seen, which is recognized as a large hydronephrotic or polycystic kidney. By trocar and canula and suction 2300 cc. of thin, opaque fluid is aspirated; this has a definite ammoniacal odor. The fluid is within three cavities, multilocular. The wall of the mass is thinned to 2-3 mm. in lower portions. The upper pole and the wall medially is thicker and shows definite kidney cortex. Vessels of pedicle are normal. An isthmus fusing lower poles of both kidneys is palpated directly over lumbar spine and descending aorta. A cord passing in front of the isthmus, believed to be an atrophic left ureter, is recognized. The upper pole of left kidney is densely adherent and is separated with considerable difficulty. There is only moderate hemorrhage during the heminephrectomy. The fluid aspirated from the hydronephrotic kidney is faintly albuminous, with sediment chiefly of red blood cells.

Convalescence was interrupted by the formation of a residual abscess, left loin, which necessitated incision and drainage. This was done under inhalation anesthesia on March 7. Patient was allowed to be up on April 15, and was discharged, fit for light work, on May 13.

At the time of discharge he had a small sinus, left loin, with very slight drainage. Intravenous pyelograms on May 7, showed "a definite increase in the outline of the pelvis and the contour of the right kidney."

The patient reported for observation July 1, stating that he had returned to his usual work. He felt perfectly well, and the wound was well healed. Urine was normal except for faint trace of albumin.

COMMENT

In this case the patient had a horseshoe kidney with both kidneys hydronephrotic. The left was the larger hydronephrosis. The red blood cells found in the fluid aspirated from the left hydronephrotic mass were undoubtedly due to the contusion. The bloody urine from the right ureteral catheter may have been due to the contusion or the trauma of the catheter. The patient was apparently without symptoms and was not aware of the greatly en-

larged left kidney prior to the direct trauma to his left side which caused him pain and interrupted his working.

SUMMARY

1. There is presented a case of the anomaly of horseshoe kidney with a bilateral hydronephrosis. The first attention directed to the kidney was after a contusion. The horseshoe kidney was not diagnosed before operation.
2. Comments are made as to the incidence, embryology, pathology, preoperative diagnosis and surgical procedures on horseshoe kidneys.
3. If the general surgeon is going to use intravenous urography in the differential diagnosis of abdominal conditions, he should pay more attention to the salient points in roentgen diagnosis, the chief of which is that imperfect rotation of the kidney pelvis with all or part of the calices pointing anteriorly or medially suggest a renal anomaly, probably a horseshoe kidney.

FRACTURE OF SPINAL NEEDLES

FUNDAMENTAL LAWS FOR DURAL PUNCTURE AND FOR REMOVAL OF FRAGMENTS OF NEEDLES WITHIN OR WITHOUT THE DURAL SAC

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A study of the varying conformation¹ of the spinous processes in the different regions of the back,² together with relative measurements³ of motion between juxtaposed dorsolumbosacral vertebrae⁴ will present the profession with newer concepts for the development of a standard dural puncture technic and for prevention of complications such as fracture of spinal needles.

THE DORSOLUMBOSACRAL INDEX

A short discussion of the mechanics of the dorso-lumbosacral spine is essential in carrying out a quick, safe, efficient and successful dural puncture. In order that the reader may better understand a complete and scientific discussion of the subject at hand, I shall refer him to Odger's recent article⁵ pertaining to diarthrodial joints of the lumbosacral spine. Limited space will not permit me to incorporate a necessary part of his article to emphasize the importance of the variability in the mechanics of male and female spines as well as the variability

1. Struthers, J.: *J. Anat. and Physiol.*, 27:131, 1892.
2. Meyre, H.: *Statik u. Mechanik der Menschlichen Knochengelenke*, p. 212, 1873.
3. Sontag, C. F.: *The Morphology and Evolution of the Apes and Man*, p. 102, Bale, London, 1924.
4. Goldthwait, J. E.: *The Lumbo-sacral Articulation. An Explanation of Many Cases of "Lumbago," "Sciatica" and Paraplegia*. Boston M. & S. J., 164:365-372, March 9, 1911. *Variations in Anatomic Structure of Lumbar Spine*, *J. Orthop. Surg.*, 2:416, July, 1920.
5. Odgers, P. N. B.: *Lumbar and Lumbosacral Diarthrodial Joints*, *J. Anat.*, 67:301-317, Jan., 1933.

of mechanics in the various vertebrae of any one spine.

A knowledge of the forward and backward flexion, rotation and a combination of these vertebral movements must be appreciated, together with the fact that a needle semifixed in elastic membranes at each end and fixed at its inner one-third in the inelastic interspinous ligaments will have to bend in a short or long arc according to the point and direction of pressure exerted at different segments of the needle by the spinous processes. It may readily be visualized that a needle will have to bend during the emergency in two or more directions. Breakage will, of course, occur during movements which produce an acute angulation of the needle. Short arcs are very prone to cause breakage of a spinal needle; long arcs are less ineffectual in the production of fracture.

NEEDLES

One should purchase only rust-proof, flexible needles, sizes 20 to 22. Size 22 needle rusts out from the inside more quickly than size 20, and is more easily broken on account of its inherent fragility. Needles larger than size 20 produce unwarranted complications and should not be used either in diagnosis or treatment. The three inch needle allows greater dexterity, is less liable to break, but is too short to reach the dura in a few large and fat subjects at the fourth and fifth lumbar interspaces.

DURAL PUNCTURE SITES

At first glance one is apt to be deceived by the apparent simplicity in applying the technic of dural puncture in the lumbar region. Even after continued use of the needle for diagnosis or for treatment, in hundreds of cases difficulties are encountered when natural and acquired morphologic variations prevent a successful dural puncture in the elected interspace.

If dural puncture is performed in the lower, mid and upper dorsal regions, more and more skill is demanded to insert the needle deftly beside and between the spinous processes. Those who perform dural puncture with the patient flexed and sitting are confronted with more and greater dangers than are those who use the flexed and lateral recumbent posture. For instance, dural puncture shock and fainting are seldom if ever produced in the lateral flexed posture, but have often been reported by those who use the sitting and flexed position. If, while performing dural puncture in the sitting position, the patient becomes faint or really faints, the needle must be speedily removed before movements of the spine cause the needle to snap. Needles

are easily snapped by movements of spinous processes, especially in those interspaces where the latter overlap or approximate each other and at those vertebral segments where leverage on the needle is great. Ordinarily, therefore, in the average patient possessed with a normal arrangement of the spinous processes, fracture of the spinal needle should occur with the least frequency in the lumbar region. The middorsal and midcervical regions present the greatest obstacles to the performance of dural puncture, because the openings are small and well guarded by closely approximated variable shaped bony processes which make entrance difficult. In these regions a spinal needle may snap and break, even if the patient moves ever so slightly.

DISCUSSION OF DURAL PUNCTURE

The secret of performing an uncomplicated dural puncture lies in placing the patient in the proper posture and through the use of a technic which guides the needle painlessly through the posterior dura without penetrating the periosteum or touching the bone.⁶ The patient must be instructed before every dural puncture in regard to its simplicity and importance, if he is to cooperate and remain in one posture throughout the procedure with no vertebral or other movements. The patient is never permitted to look, turn, twist, flex or extend after once being placed in the desired flexed posture. By these simple rules all fractures of needles which are caused by movements of the patient are eliminated. Fractures are seldom produced by a well trained, careful and knowing operator.

MIDLINE PUNCTURE OF THE DURA

A spinal needle placed in the midline and equidistant between the spinous processes throughout the route to the dura is held firmly in position by the ligaments through which it passes. Therefore, if any undue pressure is placed on the upper or lower side of the needle, it may break within the supraspinous ligament or a little deeper within the interspinous ligament. Slow side movements without acute angulation of the needle made at its outer end by the anesthetist are not so dangerous as acute angulations produced by vertebral movements of the patient.

A needle inserted close to or under the periosteum of the spinous process is even more easily fractured by short quick thrusts of the lower end of the cephalic spinous process, because the inner one-third of the needle is held tightly in the insertion of the ligaments or in the periosteum. Needles inserted in

6. Vehrs, G. R.: *Spinal Anesthesia*, The C. V. Mosby Co., Inc., St. Louis, 1934.

the midline between the spinous process at an angle-up, down or sidewise are also easily fractured because movements produce multiple and variable lever effects on the misplaced needle.

FRACTURE OF NEEDLES DURING LATERAL DURAL PUNCTURE

If a spinal needle is inserted one-half or three-quarters of an inch from the supraspinous and interspinous ligaments in an oblique direction, so that the sharp beveled inner end enters the center of the dorsal intervertebral foramen through the ligamentum subflavum, the rest of it will be in soft muscle tissue and the entire needle will be well out of the way of the cephalic spinous process, if the patient should happen to flex or extend his back. Therefore, this method of not cutting the supra- and interspinous ligaments not only eliminates ligamentary backache but also scientifically prevents accidental fracture of the needle during any unexpected quick vertebral movements. During the first few dural punctures this method will seem awkward, but after a little practice one will find that it can be deftly performed, that punctures are more successful, and that complications are at a minimum.

SIGNS OF FRACTURE OF A SPINAL NEEDLE

1. A sudden and apparent freedom of the outer end of the needle to move in any direction.
2. The outer end of the needle will easily move in any direction because the fixed end is fractured at its junction with the unfixed end.
3. If the stylet is removed it usually cannot be fully inserted again.
4. Withdrawal produces only a part of the needle.
5. If the inner end of a fractured needle is left in the patient for sometime, the tissue adjacent to it may be discolored by rust.
6. Muscle rigidity, vertebral fixation or both may or may not be present.
7. Loss of weight may be slow, rapid or absent. Emaciation may be slight or extreme.
8. a. The roentgenogram shows the presence and location of the missing part or parts of the needle.
- b. A productive localized arthritis may occur in the adjacent vertebra, if the needle penetrates the periosteum or the bone.

SYMPTOMS WHICH RESULT FROM A RETAINED FRAGMENT OF SPINAL NEEDLE IN THE BACK

1. There may be a total absence of symptoms for a short or long time.
2. Pain may be experienced in the back, in either extremity or in the head.
3. Weakness and inability to stand or walk may be present.

SYMPTOMS OF CONCOMITANTS OF A DEFINITE KNOWLEDGE OF THE PRESENCE OF A NEEDLE IN OR NEAR THE VERTEBRAL CANAL

1. Imagined or actual pain.
2. Unfounded fear built up through imaginative processes because of ignorance concerning the anatomy of the region containing the needle.
 - a. The patient is afraid to move.
 - b. He imagines that the needle may stick or cut the spinal cord, even though it may be a fraction of an inch or several inches distant to the cord.
 - c. Worry produces headaches, backache, loss of weight, eyeache, lacrimation, mental and physical exhaustion, irritability and grouchiness.

CONCOMITANTS OF A DEFINITE KNOWLEDGE OF REMOVAL OF A NEEDLE FROM WITHOUT OR FROM WITHIN THE VERTEBRAL CANAL

1. Pain, actual or artificial, leaves.
2. Joints again function.
3. Reflex symptoms clear up.
4. All cases to date have recovered with no apparent disability.

AUTHORITY FOR REMOVAL OF FRAGMENTS OF NEEDLES

If a surgeon requests and receives full authority to do what medical, surgical and diagnostic care is deemed necessary by him during the performance of treatment for the original operation and for any complications which may arise, it will be unnecessary subsequently to obtain authority. If such authority has not been obtained, it is best to obtain it from the proper sources and proceed in the usual and customary way in accordance with the general rules laid down by the profession. If the patient or relatives refuse permission to remove the needle, or if in the judgment of the acting surgeon and consultants it is deemed wise not to immediately remove same, or if for any other sensible reason it is best not to inform incompetents, the operation may be delayed until symptoms and signs develop which demand removal of the fragment.

OPERATION FOR REMOVAL

If the operation for removal of the needle is to be performed at once, it is best and safest to use local anesthesia unless the patient's nerves have been previously blocked by spinal anesthesia. If within the judgment of the surgeon the operation for removal of the needle must be deferred on account of the necessity for immediate operation on the pathologic condition, it may be removed following the primary operation under like anesthesia. The surgeons may also choose first to roentgenize and localize the needle at a later date, and then if no symptoms arise, it may be left in situ until symptoms arise.

If the operation is to be done at once, a five or

six cm. incision is made alongside the outer end of the needle down to the spinous processes. The outer end of the needle and stylet should never be removed before operation because they serve as a guide to the inner fragment. If they have been removed and the inner fragment is known to extend posteriorly outside the dural sac and near enough to grasp it with an instrument, one may operate. If the inner fragment is short and within the dural sac, it is best not to operate unless symptoms arise which demand localization of the needle by roentgenogram and subsequent operation. If the inner fragment is under periosteum or deep within the interspinous ligament, it may be necessary to take a part or all of one or more spinous processes, or even three or four laminae in order to find the needle. Any needle within the posterior dura, within the dural sac or within the spinal canal is a foreign body and should be removed. If the needle fragment penetrates any segment of the cord, it should be immediately removed. If the fragment is within the dural sac, laminectomy is essential. The dural sac must then be opened, followed by a systematic, delicate exploration and a careful removal of the needle. If the needle point is bent and hooked, care must be used in turning the hook so that nerve fibers will not be damaged. Subsequently the dura, muscles, fascia and skin are closed in layers.

If an inexperienced technician thrusts a needle through a vertebral cartilage into the abdomen, it may be localized by roentgen ray and removed by laparotomy transperitoneally. The main and essential points in removing a fragment of spinal needle is a generous dry incision, a careful localization of the needle by following its outer end with the stylet in situ or, if the outer end has been previously removed, insert a scalpel at right angles to the inner fragment and then, after cutting the ligaments on each side of the needle, grasp and gently extract it with a hemostat. Bone instruments should be used unhesitatingly when propitious. The result of operative procedure in these cases has been highly satisfactory in that the patients have all convalesced with no or practically no symptoms or signs of sequelae.

REPORT OF A CASE

Previous to a hernia operation and during the performance of a series of dural punctures, I broke a spinal needle. After having successfully inserted two three inch spinal needles in the fourth lumbar and the eleventh dorsal interspaces, and while inserting a third needle at the eighth dorsal interspace, the outer end of the middle needle snapped. The needles were inserted at these serial interspaces in order that samples of spinal fluid could be obtained a few minutes after the injection of pantocain through the central needle.

Needles numbers 1 and 3 were immediately removed. Needle number 2, stylet and all, was left in situ, to act as a

guide during removal. The incision was made dry. The supraspinous and interspinous ligaments were cut alongside the inverted needle so that it could be easily grasped and removed through the use of a curved sharp hemostat. The fragment was then gently withdrawn by traction in the opposite direction of insertion.

SURGEONS, SPINAL NEEDLES AND REPORTS

Torkel⁷ was first to report the removal of a broken spinal needle. Landry⁸ was first to report the use of the roentgen ray to localize the fragment of the needle before removal. Ogloblina⁹ reported the removal of a rusted brittle fragment from a rust laden ligamentary tract and the presence of a productive arthritis of the vertebra involved. Milko¹⁰ was first to report the removal of a bent spinal needle from around a nerve root within the dura by pushing the needle farther in, and then turning it parallel with the nerve root before extraction so that it could be removed without injury to the nerve. Babcock¹¹ deserves honorable mention for having broken only one spinal needle beneath the skin in an experience of twenty-four years. Wieden¹² gained the honor roll by localizing a needle which had been pushed through the intervertebral cartilage into the abdomen one-half inch to the right of the aorta and by removing the fragment transperitoneally through the abdomen. Lahey¹³ described the localization and removal of needle segments in three cases. Saranoff¹⁴ gave the best and most complete description of the technic for the removal of broken spinal needles. Popp¹⁵ reported a case and gave a complete resume of all the reported operations to and including April, 1934. As far as I know the author is the tenth surgeon to report the fracture and removal of the fifteenth segment of spinal needles during the fifty years of spinal anesthesia.

The majority of operations for removal of fractured spinal needles have not been reported, but we look forward to these reports for the purpose of improving roentgen and operative procedures, for the stimulation of a greater refinement in the technic of dural puncture and for the prevention of such fractures.

7. Torkel, K.: Breaking of Spinal Needle During Lumbar Puncture. *Deutsche med. Wchnschr.*, 33:2050, 1907.

8. Landry, L. H.: Extraction of Exploring Needle Broken in Attempting to Do Spinal Puncture for Diagnostic Purposes. *New Orleans M. & S. J.*, 68:404-406, 1916.

9. Ogloblina, Z.: Removal of Lumbar Puncture Needle Which Had Been in Spinal Canal for One Year. *Zentralbl. f. Chir.*, 55:1807-1809, July 21, 1928.

10. Milko, W.: Comment on Ogloblina's Article and Case Report. *Zentralbl. f. Chir.*, 55:2775-2776, Nov. 3, 1928.

11. Babcock, W. W.: Breaking of Needle in Spinal Puncture. *S. Clin. No. Am.*, 8:803-805, Aug., 1928.

12. Wieden, L.: Removal of Broken Spinal Puncture Needle by Laparotomy. *Zentralbl. f. Chir.*, 57:724-725, March 22, 1930.

13. Lahey, F. H.: Removal of Broken Spinal Anesthesia Needles. *J. A. M. A.*, 93:518-519, Aug. 17, 1929.

14. Saranoff, J.: Breaking of Spinal Needles. *Internat. J. Med. & Surg.*, 44:472-475, Oct., 1931.

15. Popp, A.: Removal of Broken Needles from Spinal Canal. *Wisconsin M. J.*, 33:287-291, April, 1934.

ALCOHOLISM AND MORPHINISM IN PRIVATE PRACTICE

A RATIONAL REGIME FOR THEIR MANAGEMENT

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Because of his first hand experiences in practice, plus the reports of the press, the unbiased physician must be cognizant of the everincreasing problem of chronic and acute morphinism and alcoholism. The fact that the Federal government requests "authority to revoke the licenses of dope-dispensing doctors where state medical boards fail to act,"¹ and the fact that such physicians may obtain acquittal on the argument "that medicine cannot cure such addictions and therefore it is preferable to have the physician administer the drug to alleviate suffering"² is a sad commentary on the body of the medical profession. That the U. S. Public Health Service recognizes the medical problem involved in morphine addiction is exemplified by its establishment of the Federal Narcotic Farm at Lexington, Kentucky, and by its cooperation with the Rockefeller Foundation and university clinics in controlled research.³

Nevertheless, the majority of addicts are seen by the practicing physician. The medical man cannot look to the specialist and Federal control alone; he must dispense local aid and treatment to alleviate the suffering with the attendant social deterioration of the addict. Most addicts will disclose that at some time during their early careers they have earnestly sought relief and help from physicians, this being especially true of the alcoholic. In many instances the physician was helpless in the face of the problem; oftentimes the addict has met with rebuke instead of sympathetic understanding, so that he has come to shun the medical man. Unless physicians voluntarily recognize their obligation in the solution of this problem and keep it with the domain of medical practice, where it rightly belongs, they may awaken from their lethargy to find that the issue is forced to their attention by lay bodies and that they must substitute their attitude of *laissez faire* by one of scientific thinking and planning.

ETIOLOGY

Morphinism and alcoholism represent symptom-complexes, the expressions of an underlying neurotic character. Only a small percentage of mor-

phine addicts acquire the habit following the administration of the drug for medical purposes; few alcoholics would confess that they learned of the exhilarating effects of alcohol following its medical use. Therefore, the substitution of dilaudid and other synthetic nonhabit forming drugs in medical practice will not solve the morphine problem. The addict who resorts to sedation for relief of his anxiety, fear and tension states, which are the expression of his neurotic and oftentimes psychopathic state, will obtain the drug regardless. That these people need these drugs, and that where there is a demand there will be a supply have been forcefully demonstrated by the prohibition of alcohol wherever it has been tried.

Morphinists and alcoholics suffer from chronic anxiety and fear states, the product of friction resulting from maladjustment on the level of interpersonal relations. Through contact, opportunity and experience they learn of the soothing and reassuring effect of these two major narcotizing drugs. After the effect wears off, the sense of anxiety and depression is more acutely felt. The indulgence is repeated, the dosage increased as tolerance develops. A chronic to subacute or periodically acute (in case of alcohol) state of intoxication results, incompatible with social adjustment. If the drug is suddenly abandoned during the acute or subacute state of intoxication, there results a delirium.*

TREATMENT OF THE DELIRIUM

This symptom-complex, characterized by intense states of fear, with delusions and hallucinations of persecution, palpitation, sweating, diarrhea and a sensation of prostration, is generally known as "withdrawal symptoms" in the case of morphinism and as delirium tremens in alcoholism. Over these manifestations the patient has no control. With this as a working hypothesis, several schools of treatment have developed: (1) returning the patient to the drug and gradually decreasing the dose, very undesirable; (2) placing the patient in a state of controlled narcosis by the use of hyoscine or some other sedative, more human, scientific; in delirium tremens and in selected cases of morphine addiction very effective; (3) the use of insulin controlled by sugar intake. The successful use of these last two methods in the treatment of the deliria will be considered here.

Sakel⁴ first reported the control of morphine delirium by the use of insulin in fractional doses as symptoms appeared. This method and modifica-

1. Fitzmaurice, W.: Seattle Post-Intelligencer, 108, Dec. 10, 1934.

2. Seattle Daily Times. Report of Acquittal of Dr. T. P. Ratigan on Charge of Violation of Harrison Narcotic Act. Oct. 14, 1934.

3. Edmunds, C. W., Eddy, N. B. and Small, L. F.: Studies on Morphine Addiction Problem. J. A. M. A., 103: 1417-1419, Nov. 10, 1934.

* The psychopathology of alcohol and morphine delirium and its relation to the anxiety neuroses and schizophrenia will be reported elsewhere.

4. Sakel, M.: Neue Behandlung der Morphinsucht, Deutsche med. Wochenschr., 56:1777-1778, Oct. 17, 1930.

tions thereof has been used successfully in various clinics and is now accepted as an established method for terminating the acute withdrawal manifestations. Reports by Braun,⁵ Howard,⁶ Jacobi⁷ and others will supply detailed data for those desiring further information.

CASE REPORTS

Case 1. A middle-aged business man had been addicted to the use of morphine for over a decade, using the drug in varying doses up to 15 grains per day. At admission, on Feb. 11, 1934, he was using 6 grains per day. The patient presented the picture of a typical anxiety neurosis with a long history of gastrointestinal dysfunction, chiefly with spastic manifestations; loss of 40 pounds in weight in 4 months; B.P. at admission 160/90 mm. Hg.

On admission the morphine was suddenly stopped and he received 15 units of 40 units per cc. of insulin without sugar. Blood sugar on Feb. 12 at 9 a.m. was 125 mg. He received 60 units without sugar; Feb. 13, 60 units, followed by a mild hypoglycemic reaction. To Feb. 20 he received 20-30 units of insulin per day, controlled by glucose when indicated. Blood sugar on Feb. 19 was 58.8 mg. without hypoglycemic symptoms. Fasting blood sugars on Feb. 20 and 21 were 117.6 and 110 mg. respectively.

On Feb. 23 he was discharged as symptom-free, and continued on 15 units per day for about a week. At no time did he suffer from any pronounced withdrawal symptoms. A mild diarrhea presented itself during the earlier phases. Sleep was facilitated by sedatives. At completion of treatment his systolic B.P. was 120 mm. of Hg.

During convalescence he gradually gained in weight, was placed on a psychotherapeutic regime and today is back at work, symptom-free and off the drug. Prognosis good.

Case 2. The next case is a 20 year old girl who had been using morphine up to 7 grains per day, alcohol and various barbiturates in excessive doses since fifteen years of age. Because of her excellent physical condition she was subjected to the sustained narcosis regime for the control of the withdrawal symptoms. She was admitted on Sept. 19, 1934 and discharged Nov. 2 as symptom-free and partially rehabilitated, when she started on a psychotherapeutic regime and to date has made a good adjustment and returned to school.

Case 3. A middle-aged salesman, addicted to the excessive use of alcohol for two decades. At the time he was contacted he was suffering from delirium tremens following a three months siege of acute alcoholism. He was put to bed at home under the care of a trained nurse and subjected to the sustained narcosis. Two weeks from Nov. 3, 1934, he returned to work as symptom-free. The manifestations of the delirium were immediately neutralized after the narcosis took effect. He is at present still undergoing his psychotherapeutic rehabilitation and has been abstaining from alcohol. The home situation has been rehabilitated and the prognosis is fair.

For the lack of space four further cases of alcoholism with and without delirium, who were treated by the sustained narcosis or modifications thereof,

cannot be reported in detail. Suffice it to say that all responded favorably and have been vocationally rehabilitated.

FOLLOW-UP TREATMENT

After the delirium which follows the sudden withdrawal of the alcohol or morphine has subsided, general supportive measures must be instituted and the real treatment begun. The treatment of morphine and alcohol addiction does not stop with the resolution of the acute manifestations, a mistake too frequently made. There must not be any misunderstanding on this point. This paper proposes to deal chiefly with the management and treatment of addictions in which control of the acute manifestations is only a minor part.

During the early phases of rehabilitation the patient may be subject to periodic fear and anxiety states (in lay language known as the "jitters"). To control the impulse to drink or return to the drug at such times, the patient is advised to carry some quick acting sedative on his person, a dram of paraldehyde diluted in an ounce of water which he may take whenever needed. To alleviate or obviate any chronic tension state, it is advisable to keep him on a maintenance dose of a mild sedative for a few weeks; the barbiturates prove very satisfactory. He is definitely instructed that in case he does relapse, he must not take the "morning after the night before shot or drink"; in place of this a sedative is used. All the time a spirit of help, confidence and understanding must be maintained.

The patient remains under a regime of psychotherapeutic rehabilitation for a period of six months to a year. No alcoholic or drug addict can be pronounced cured until he has been off the drug without serious relapses for at least a year. The psychotherapeutic regime consists of a reorganization of his mode of life. He is placed on a schedule of work and recreation to reduce the high tension always present. A thorough check of the family and sex life is essential. Frequently an intolerable home situation in the form of a neurotic spouse is disclosed. In such case the partner must also submit to psychotherapy or the chances for relapse are great. In the case of younger people living at home, it is necessary to remove them from the home situation and place them in a cheerful, understanding environment. It is efficacious to have the addict refrain from tempting situations, such as reunions and "parties"; it may be necessary that he select a new set of friends. Most of these procedures are easily carried out. I supplement this regime by a course of psychoanalytic treatments which in my

5. Braun, F.: Insulin zur Bekämpfung der Abstinenzerscheinungen bei plötzlichem Morphiumentzug, Schweiz. Arch. f. Neurol. u. Psychiat., 27:226-233, 1931.

6. Howard, M. Q.: Insulin as Aid in Withdrawing Morphine, Am. Therap. Soc., 33:103-107, 1933.

7. Jacobi, J.: Advances in Treatment of Morphinism with Insulin and Grape Sugar, Monatschr. f. Psychiat. u. Neurol., 80:221-232, Sept., 1931.

experience has proven most satisfactory and acts as a reliable index in gauging the progress and in determining whether the patient is cured or simply "on the wagon."

MODE OF ACTION

Starting with the hypothesis that the deliria represent the primary fear and anxiety index raised to the nth degree, following the sudden release of the stabilizing influence of alcohol or morphine, the pharmacodynamics underlying the abrupt substitution for these narcotics by a more desirable sedative in diminishing doses are quite apparent. Contrary to the opinion of certain schools that a delirium tremens represents a toxic reaction and that the administration of sedatives would further tax an already affected cerebrum, the good results obtained with the sustained narcotics refute the toxic and substantiate the anxiogenetic etiology of a delirium. The high mortality rate in untreated cases of delirium results from a cardiac collapse. Therefore, a rational and effective therapy evolved on the above concept endorses itself.

When we turn to the use of insulin, we are confronted with a more difficult problem of interpreting its action. Yet we again find parallel clinical effects in both types of deliria following its use. Klemperer⁸ reported the successful use of insulin in aborting delirium tremens. How are we to explain this?

From the physiologic angle it has been repeatedly demonstrated that chronic anxiety states are accompanied by a hyperglycemia. This is true of the hypertensive anginal syndrome,⁹ schizophrenic panic states,¹⁰⁻¹⁴ Grave's syndrome,¹⁵ psychobiologic types predisposing to addiction.¹⁶ In many of these syndromes we also get an increase in basal metabolism rate. Quaranta¹⁷ has demonstrated that the chronic

use of morphine results in a hypoglycemia. David¹⁸ reports a reduced basal metabolism rate following the use of morphine in therapeutic doses. And as has previously been stated, it is persons suffering from chronic anxiety states who predispose to addictions.

Thus far there obtains a parallelism on all fronts and the action of insulin in combatting the "withdrawal symptoms" of morphinism probably is as follows: The anxiety neurotic with a predisposition to hyperglycemia and an increased basal metabolism rate finds solace in morphine; its prolonged use results in a vasomotor depression, hypoglycemia and lowered basal metabolism. After a period the body physiology is conditioned to this state of vasomotor depression and of hypoglycemia. The sudden withdrawal of the narcotic results in vasomotor release and a return to "normal" or to hyperglycemia. The introduction of insulin again induces a state of hypoglycemia, to which the body physiology had been accustomed and the patient is symptom-free. Whether this takes place directly or through the medium of the vegetative nervous system is an open question. Within a week to ten days the morphine has been excreted and the body metabolism gradually reconditioned to its physiologic norm. The anxiety state remains and, therefore, the necessity of psychotherapy to complete the treatment.

Whether the same physiologic argument may apply in the supposed action of insulin in aborting a delirium tremens cannot be answered, since the body of physiologic data in regard to this symptom-complex is as yet too incomplete. Which method is preferable in a given case is determined by the physical status of the patient. In the treatment of delirium tremens the sustained narcosis recommends itself, because the body weight is usually well preserved. In morphine addicts whose weight has not suffered as in case 2, the same is true. But since most morphine addicts are undernourished, the insulin therapy is the more desirable because the narcosis does result in a loss of weight up to 5 or more kilograms. The insulin therapy also increases the patient's appetite and state of nutrition, yet prevents severe reactions of collapse, and has proven the more successful in this type of case.

SUMMARY AND CONCLUSIONS

Morphinism and alcoholism can no longer be regarded by physicians as a moral or social issue. The addiction results from the use of the drugs in combatting a chronic anxiety and tension state. Deliria represent not toxic reactions but exagger-

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ated fear states following the abrupt decrease or complete withdrawal of the stabilizing influence of alcohol or morphine. On the basis of this pathogenetic hypothesis rational forms of therapy, the sustained narcosis or fractional administration of insulin, are utilized in the treatment of the acute manifestations as the first step in the rehabilitation of such patients. After the acute symptoms have subsided the patient must be subjected to a course of psychotherapeutic rehabilitations. No addict may be considered as cured until he has been off the drug without serious relapses for at least one year, with a parallel change for the better in his mode of living.

UNDULANT FEVER

A CASE TREATED BY IMMUNE SERUM*

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Since Craig in 1906, first reported the existence of Malta or Mediterranean fever in the United States, this disease has become widespread. It has been reported in every section of the country. Not only goats, but also sheep, cows and hogs are now known to be hosts of the infecting organism. The term undulant fever is now generally used to designate this condition.

The disease appears self-limited, is rarely fatal, but causes considerable disability. Various remedies have been employed, among which are vaccines and sera, aniline dyes intravenously, blood transfusion and "protein shock" therapy.

I wish to present a case which demonstrates a marked beneficial response to convalescent serum.

Two brothers, W. H., 15, and G. H., 17, took ill about April 1, 1933. They were first seen on April 4. Their symptoms and lack of physical signs were those usually seen in this disease, and were so suggestive that a specimen of blood was obtained at once from each patient. They proved positive in dilutions of 1:1280 and 1:640 respectively.

Treatment with intravenous injections of gentian violet proved to be of no benefit. During the first four weeks of observation the temperature of G. H. ranged between 99.2° and 103.4°. At the expiration of this time the temperature dropped and coincidentally the symptoms subsided. The temperature remained near normal for weeks, not rising above 99.2°. W. H., however, remained very ill. His symptoms were more severe, and his temperature ranged up to 104.2°. During the sixth week of the disease his temperature rose daily to 102.9°.

At the expiration of six weeks of observation one brother was quite well, while the other was very ill. G. H., the well brother, was then taken to the laboratory of the Swedish Hospital, a pint of blood was removed, and the serum prepared for injection. Fifteen cc. of this immune serum was given to W. H. intramuscularly every third day. Results were little short of miraculous. Within forty-eight hours the

temperature dropped to normal, and remained so for ten days. The patient's sense of well-being increased as markedly as the temperature improvement. With the exception of a five day period, when the temperature rose from 99.6° to 100.7°, the temperature never rose above 98.8° for a period of observation covering two months. An interesting feature was the recrudescence of G. H. in the eleventh and twelfth weeks of his illness, when his temperature rose daily to as high as 100.6°.

Both of these young men have remained well during the two years since their illness. G. H. was ill for ten days with a severe septic sore throat the past winter. This was the only illness suffered by either brother.

Subsequently G. H. again was donor of blood serum which was used on another patient. The results were very beneficial, but the pertinent data could not be obtained.

A check of the source of this infection afforded some illuminating facts. One dog was the only animal in or near the house. This family obtained raw milk from a grocery store, which in turn was supplied from a dairy which served approximately five hundred families. Milk serum from a sample of this milk agglutinated *B. abortus* in dilutions of 1:40. The blood of forty-three cows was examined. Fifteen were positive; sixteen were doubtful, agglutinating *B. abortus* in dilutions of 1:40 to 1:80, while but twelve were found negative.

In spite of this condition, no other cases of undulant fever were reported among persons along the route of this milk dealer. We are forced to the conclusion that most individuals are immune, having gradually built up a resistance to this organism. I believe this fact would account for the success of Quevli and Nelson of Tacoma in their method of treating undulant fever by whole blood transfusion.

MYASTHENIA GRAVIS: EFFECT OF TREATMENT WITH ANTERIOR PITUITARY EXTRACT. Harold E. Simon, Birmingham, Ala. (*Journal A. M. A.*, June 8, 1935), states that the number of cases available for the study of the effect of subcutaneous injections of anterior pituitary extract in the treatment of myasthenia gravis is too small and the period of time over which they have been observed is too short to permit general conclusions, but the results so far are very encouraging. Both of his patients presented undoubted clinical evidence of myasthenia gravis. In both instances the response to treatment with anterior pituitary extract was prompt and complete, and a relapse promptly followed when the injections were omitted. On the resumption of treatment the symptoms again promptly disappeared in both cases. Since no other treatment was employed, it would seem justifiable to conclude that this preparation had a marked beneficial effect on all the clinical manifestations of myasthenia gravis in these two cases. In the first case it was possible to discontinue the treatment after four and one-half months without recurrence of symptoms. It is impossible to determine whether this was the result of the fortuitous occurrence of a remission or whether a remission was induced by the treatment. In the second case it has been necessary to continue the treatment and during cold weather to increase the frequency of the injections in order to keep the patient clinically well.

* Read before a Meeting of the Staff of Swedish Hospital, Seattle, Wash.

NOTES ON ALASKAN MEDICAL HISTORY*

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The famous Kamchatka expeditions, occupying from 1725 to 1740, were preliminary to the Alaskan voyages of discovery. The astute Peter the Great of Russia, at whose orders these expeditions were organized, died February 8, 1725, just three days after the start of the first one, but his instructions were carried out by his wife, Empress Catherine, and his daughter Elizabeth.

This first expedition was under the command of Vitus Bering, a Danish captain in the Russian service, and consisted of about six hundred men—scientists, physicians, monks, cossacks, artisans, historians, sailors, bakers and adventurers. The long Siberian journey bristled with hardships. Two hundred men died of scurvy; their rough graves became the milestones of the long trek, but remnants of the expedition finally reached Okhotsk. That was but another beginning. There ships had to be built to sail the Pacific, but the Russian conquest of the Alaskan wilderness had begun.

We have the names of three physicians who survived the overland journey to Kamchatka. George Wilhelm Stellar was assigned as physician and naturalist to the St. Peter, Captain Bering's ship, and under him worked surgeon's assistant Betge. On the vessel of Chirikof, second in command, is named surgeon's assistant Lau. It is not certain that either Betge or Lau ever actually set foot in Alaska, but Stellar did without doubt, and to him probably goes the honor of being the second white medical man on the entire Pacific Coast. (There was a surgeon with Drake in 1578 on the California Coast.)

Stellar was born March 10, 1709, in Franconia. He studied medicine and natural history and attended the universities of Wittenberg, Leipzig, Jena and Halle. In December, 1734, he was sent with a shipload of invalid Russian soldiers from Danzig to St. Petersburg. Here he became "leib medicus" to the bishop of Novgorod and in 1737 was made adjunct in natural history and was ordered to Kamchatka. Larsell tells us that before starting for this distant region he first married the widow of an officer in the capital, with the expectation of taking her with him on the anticipated long sojourn in Siberia. Whatever were the lady's promises before marriage, she exercised her feminine prerogative of changing her mind once the nuptial knots were tied,

and the young physician must leave his bride in the gay capital to share his income but not his hardships.

In the summer of 1741 the St. Peter and the St. Paul, under Bering and Chirikof, were finally ready for duty. On each vessel were several months' provisions and several cords of wood for fuel. Stellar and Betge were with Bering, and Lau was with Chirikof. Although the ships had intended to keep together, storms separated them. Their separate journeys have been recorded elsewhere in detail; suffice it to say here that in spite of incredible suffering and hardship and the death of many of the men, including Captain Bering himself, from scurvy, these Alaskan voyages of discovery were successful. Through it all Stellar kept his journal and recorded the triumphs and disasters vividly, the storms, lack of water, sickness, landing on Alaskan shores, search for antiscorbutic herbs and remedies, deaths, experiences as island castaways during a desolate winter, loss of the ship, building a new boat from the remains of the wreck and return without their leader to Kamchatka. Stellar died in Siberia, but left important contributions and discoveries in natural science, among them an account of the great mammal, now extinct, known as Stellar's sea cow (*Rhytina Stellari*). These, perhaps, rather than his medical work constitute his claim to fame.

The skins of the sea otters and foxes which the survivors brought back gave the new land a value that immediately turned covetous eyes toward it. Within a few years a horde of Russian traders and hunters had started for the Aleutian Islands. The boats they built were of the crudest kind and often went to pieces in the first gale, but though there were shipwrecks and much suffering, the rich cargoes they brought back of sea otter and fox skins incited others to brave the dangers. The peaceful Aleuts were cruelly mistreated and many committed suicide to escape the Russians. Thus voyage by voyage the hunters and traders, the promyshleniki, as they were known, sought out and made known the different units of the long chain of the Aleutians until they reached the continent of America.

Andrews tells us that during the earlier years they went to the Commander Islands the first season, killed the sea cow and prepared its meat for food, dried or buccaned it much as did the buccaneers of the Spanish Main at the same period of history, then fared forth upon the defenseless

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islanders much as Morgan and his pirates fell upon the peoples along the shores of the Caribbean. They had no knowledge of navigation, coasted from island to island, sometimes losing their way and sailing far out to sea through mistaking the side on which they lay. Golofnin records an instance of a ship sailing so far to the south that the pitch melted in the seams before they turned north again and found the chain of islands.

The outrages committed by these early traders led to the formation of trading companies with the pretense at least of government oversight. The most important of these was the one with which Gregor Shelikof was associated. He has been called the founder of the Russian colonies on the American continent. Not only did he decide that new hunting grounds were necessary but that the establishment of permanent colonies would be wise. Therefore, in 1783, three vessels were fitted out, a company of about two hundred people gathered, and with his wife, who always accompanied him on his expeditions, he sailed eastward, finally reaching Kodiak and entered a harbor named after their vessels, Three Saints. Here they made a settlement, though the natives at first attacked them. Houses and fortifications were erected, Shelikof making his own residence as luxurious as possible in order to impress the natives. A school was opened, Shelikof himself teaching and also Madame Shelikof. There is no record of a physician at Three Saints, and the colonists had no contact with medical men until the coming of Billings in 1791.

Other European nations began to take notice of what Russia was doing in the far northern regions and as early as July, 1774, a Spanish expedition under command of Juan Perez found itself in Alaskan waters. When in latitude 54 north he fell into difficulties in the tide rips off the cape near Prince of Wales Island, his vessels almost capsized, and these perils cooled his ardor until he turned southward without making further discoveries. With Perez were two missionaries and ship's surgeon Davalos.

The great English mariner, Captain James Cook, fresh from his service before Quebec under Wolfe, had been sent to the southern seas for his famous voyages of discovery, and was now called for his third and last voyage to go to the northern Pacific Ocean. He sailed from Plymouth, England, July 12, 1776, in the ship *Resolution*, accompanied by the *Discovery*. On his way he discovered the Sandwich Islands (Hawaiian), and entered Nootka

Sound, which had been discovered by Perez. On May 1, 1778, Cook reached the Alaskan coast, discovered and named a number of bays, islands and mountains and finally found his way barred by the Arctic ice-pack at Icy Cape. He beached his vessel for repairs on Unalaska Island and while there was visited by Russian traders from the vessel lying in the harbor of Unalaska. The commanders compared charts, exchanged courtesies, and informed each other of their explorations.

The surgeon of the *Resolution*, which was Captain Cook's ship, was William Anderson, also naturalist and ethnologist. He died while the expedition was in Bering Sea in August, 1778. Captain Cook wrote to him:

"When our navigators on the third of August had advanced to the latitude of 62 degrees 45 minutes a great loss was sustained in the death of Mr. Anderson, the surgeon on the *Resolution*, who had been lingering under a consumption for more than twelve months. He was a young man of cultivated understanding and agreeable manners, and was well skilled in his own profession, besides which he had acquired a considerable degree of knowledge in other branches of science." The day following the surgeon's death Captain Cook transferred Mr. Law, the surgeon of the *Discovery* to the *Resolution* and appointed Mr. Samwell, the surgeon's first mate of the *Resolution*, to be surgeon of the *Discovery*.

Further Russian exploration in the form of an expedition headed by Captain Joseph Billings, an Englishman who had served under Captain Cook, occurred in 1786. The expedition included, besides a surgeon's mate by the name of Leman, two medical officers and naturalists, Dr. Merck, a German, and John Main, an Englishman, who came on at the last moment. The expedition left Irkutsk May 9, 1786, and on July 27, 1791, Billings, Merck and several others landed on the Alaska coast near Cape Rodney. On August 3, they anchored in St. Lawrence Bay, from whence Billings proposed to go overland on a trip of exploration, with a party of twelve men, including Merck and Main. The consort ship, *Chernui Orel*, arrived at Illiulik Bay, Unalaska Island, and here the two ships wintered. Medical officers on the *Chernui Orel* were Surgeon-major Robeck and Surgeon Allegetti. Scurvy played havoc with the ice-bound company and many died. Bancroft tells us that a party consisting of some Russians from Shelikof's establishment at Kodiak and some natives paid a visit to the winter quarters of the expedition in search of

syphilitic remedies, brandy and tobacco. The former they obtained from the surgeons together with proper directions for using them.

Captain James Meares, in the ship *Nootka*, came to Cook Inlet in 1786, found the Russians established there and went to Prince William Sound, where he expected to meet the *Sea Otter* under Captain Tipping. He was caught in the ice and passed a disastrous winter. Scurvy attacked the crew and many died, the ship's surgeon being among the first victims. It is said that they brewed spruce tea, but that liquor was served too freely and that the fresh fish gave out. The dead were buried through holes in the ice.

In 1787 Dr. Archibal Menzies, naturalist and physician, was surgeon on the *Prince of Wales* under Captain Collnett. The *Prince of Wales* had as consort the *Princess Royal*. They made a round-the-world journey lasting three years and in 1788 were in Alaskan waters. Menzies botanized along the Alaskan coast as far as Bering Strait.

The Russian American Company founded by Shelikof had its home office at Irkutsk in Siberia with Alaskan headquarters at Kodiak. In 1799 the home office was shifted to St. Petersburg; the Emperor, Alexander the First, was made a stockholder and the company received exclusive control of Alaska. Its word was the sole law of the country and the Aleuts were used as slaves.

Shelikof died in 1795, but before that time Alexander Baranof had been selected company governor. He has been described as a coarse, shrewd, unfeeling despot who ruled his ruffians in Alaska according to his own iron law, working on the motto that "God is in Heaven and St. Petersburg is a long way off." Visitors to his capital at Sitka, however, have spoken highly of his hospitality and of his enterprising energetic personality. His resourcefulness thought nothing of securing turpentine from the trees and iron from the hills. When he found the hunting grounds of the Aleutian Islands nearly exhausted, he was quick to see the advantages of Southeastern Alaska and moved his capital from Kodiak to Sitka in 1802. He encouraged the efforts of Russian missionaries and built churches and schools, but his pride and joy were his shipbuilding ways, from which he launched fourteen vessels during his residence in Alaska.

The sloop-of-war *Diana*, the first Russian warship to enter Sitka, arrived in 1810 under the command of Captain Vasili Golofnin. He describes the settlement, the fort, and Mr. Baranof's house. In the latter he was much astonished to

see ornaments, furniture, paintings and a really fine library. The pictures were gifts of the Company and of distinguished persons in St. Petersburg and of them Baranof made the following comment: "Better that our directors had sent us a doctor, for in all the Company's colonies there is not one doctor, nor one doctor's assistant, nor one doctor's pupil."

The scourge of scurvy has fallen heavily in all Alaskan history. It reaped heavy annual harvest while the capital was at Kodiak and later at Sitka, no winter passing without heavy toll being paid. Exploring expeditions feared it above all else, and as late as 1821 the Russian ship *Borodino* lost forty men through its ravages in a voyage from Sitka to Kronstadt.

A poisoning episode of major proportions occurred in 1799. Over one thousand Aleut hunters in their bidarkas were convoy to the ship *Ekaterina* as Baranof was proceeding from Kodiak to Sitka. The larger part of this detachment of hunters was sent back to Kodiak, to hunt along the shore as they went. Two days after their departure, while encamped on the strait north of Sitka, they ate of black mussels which they had found on shore. All were taken violently ill, and in less than two hours more than a hundred died, hence the name today, Peril Strait.

By 1825 surgical and astronomical instruments of the best quality were sent to the colony at Sitka, an apothecary shop of three rooms provided medicines, and four Creole boys, under the charge of a doctor, attended to the dispensing of the potions. A hospital was in connection and the sick received fresh food, tea, sugar and medicines free upon the order of the doctor.

Near Sitka are many hot springs of mineral water that were used extensively during the Russian occupation and by the natives before them for treating many ailments. In 1813 a German physician by the name of Sheffer remained from the ship *Suvarof* and became a close friend of Baranof. Almost within the city limits of Sitka Dr. Sheffer claimed to have found a medical spring, whose waters were equal to some of the famed watering places of Germany. Several miles south of Sitka was located the most famous of the many sulfur hot springs in Southeastern Alaska, and a hospital under the charge of the army was built and maintained here under the Russians. Rheumatism and venereal diseases were prevalent and many patients, both Russian and native, resorted to this hospital.

In 1836 a terrible visitation of smallpox swept

the country, coming from the southeast and passing on to the north into the Arctic. It is said to have attacked about 60 per cent of the population and was so severe that entire villages were depopulated. Although the disease is said to have been introduced by ships in the fur trade, Andrews says that the progress of the scourge may be traced among the Mandan of Dakota and in the valley of the Willamette as well as in Russian America. Kapriouf, governor at the time, was energetic in combatting the epidemic. Vaccination was enforced in so far as possible, the whole medical staff of the Russian posts, surgeons, stewards and medical apprentices being kept in the field. A German physician, Dr. Blaschke, was in charge of the medical service. He gives the official report that three thousand natives died before any vaccination was attempted, and that for more than a year its effects were barely perceptible. In 1838 Dr. Blaschke went to Unalaska. Surgeon's assistant Malakhof was sent to the Alaska Peninsula to vaccinate the natives, and surgeon's apprentice Formin to Bristol Bay.

In 1843-44 there was another outbreak of smallpox among the Aleuts, but as most of them had been vaccinated its victims were much fewer than formerly. In 1862 smallpox came again, but owing to efficient regulations enforced by the company only a few died, the natives under Russian control being vaccinated. During Etolin's administration twelve hundred were vaccinated at Sitka, and under Furuholm vaccine was distributed at every station.

Sir George Simpson, Governor-in-Chief of the Hudson's Bay Company, visited Sitka in 1841 and '42. He describes the settlement, the natives and the fur trade, and was entertained at the Castle by Chief Manager Etolin. He reports that at this time there were but two hospitals in all Alaska, one of ten beds at Kodiak, and one of forty in Sitka.

"In its wards," writes Simpson, "and, in short, in all the requisite appointments the Sitka hospital would be no disgrace to England. . . . Near each bed was a table on which glasses and medicines were placed. The diet was usually salt beef or fish, the soup made from them, mush of rice or groats, bread and tea." In another place Sir George says that usually the captain of the port, the secretaries, two masters in the navy, the commercial agent, two doctors and the Lutheran clergyman dined with the chief manager by general invitation. He further says that hemoptysis was a common complaint.

Of a little later period Bancroft writes: "Among the most fatal diseases were consumption, gastric, bilious, typhus and other fevers, syphilis and scrof-

ula. For the sick there were hospitals at Sitka and St. Paul. In 1860 the former accommodated 1400 patients, and was maintained at an expense of about 45,000 roubles; the latter had 550 patients and the outlay was in a greater ratio. Of the 1400 patients admitted into the Sitka hospital in 1860 only 22 died. There was also a hospital for the treatment of skin diseases at the sulfur springs near Sitka. The steam bath was the great panacea of the natives, who before the Russian occupation had no medicine. . . ."

In 1867 Alaska passed from Russian to American hands and Alaskan medicine was past the era of the ship's surgeon, and the period of medical missionary effort was just beginning.

In a recent communication from Dr. Leslie White of Metlakatla, Alaska, we learn that in his vicinity the first of the relatively trained medical workers was Robert Tomlinson, who went to Metlakatla in 1887 from British Columbia. Tomlinson is supposed to be the first medical man to practice medicine north of Vancouver, having come on the Nass River in 1867 as a medical missionary. For many years he treated cases sent to him from Southeastern Alaska, since it is likely there were no practicing physicians in that part of Alaska until after 1880. James Blewitt practiced around Port Simpson, Old Metlakatla, and New Metlakatla from 1884 to 1894.

In 1878 S. Hall Young was sent as a missionary to Fort Wrangell by the United Presbyterian Board. His medical education consisted of a book on surgery that his uncle, a physician, had given him. His first case was that of an Indian boy whose leg had been broken by a falling tree. With the aid of two white men, he whittled splints and tore up sheets and set the leg. A guard was posted to keep out the medicine men and old women who posed as herb doctors. Dr. Young studied constantly and consulted medical friends in the East, and also had many cases of medicine sent him. During their infrequent visits, Dr. Young called upon the surgeons of the gunboats and took them the rounds of his Indian patients, had them prescribe and leave medicines. On one occasion the surgeon visited one hundred fifty patients, then stopped exhausted before he had finished.

A year after the arrival of Dr. Young at Fort Wrangell there came a Mr. Corleis, a Baptist missionary, with his wife and child. Since he had taken one year in Jefferson Medical College in Philadelphia he was called Dr. Corleis and Dr. Young turned over to him the majority of his cases.

It is said that for almost seven years after the arrival of Dr. Young at Fort Wrangell, there was not a single policeman or magistrate in all Alaska. Every one of the few hundred whites and the thirty-five thousand natives was a law unto himself. There were no salmon canneries, no gold mines of any consequence, and little realization of the possibilities of the country. There were only two post-offices in 1878, one at Sitka and one at Wrangell, with one little steamboat making monthly trips to them from Portland, Oregon.

Typical of the rough and ready surgery of the period is the case of Captain John A. O'Brien. In the spring of 1896 Captain O'Brien of the Utopia was bound for Sunrise Camp on Turn-Again-Arm of Cook Inlet with over one hundred passengers, when he developed acute appendicitis. He was operated upon by a miner who had been a doctor, a waiter as assistant; the equipment consisted of a bucket of hot water, a knife, a pair of scissors, a forecastle needle and thread, and whiskey for anesthetic. An interesting sidelight is that seven days after the operation Captain O'Brien was up and about, leaning on the arm of his nurse, Soapy Smith.

In the spring of 1897 the Klondike gold stampede began. Thousands poured into Alaska, entering mainly by way of Skagway or Dyea and struggling over White or Chilkoot passes, pausing at Lake Bennett to build river craft, and making a perilous passage down the Yukon to Dawson. Many cases of illness and accident were found on the trail, and many boats and rafts capsized in the dangerous water at White Horse and Forty Mile, all on board perishing. In August, 1897, Skagway was a busy city of about twenty-five buildings and three hundred tents, with two thousand men and seventeen women, five restaurants, four saloons and two practicing physicians.

In the summer of 1897 S. Hall Young and a young physician by the name of George McEwan went in to the Klondike, their purpose being to care for the souls and bodies of the sick. There they lined themselves up with the work being done well by Father Judge, "Saint of the Northwest," who had been a Jesuit missionary to the Indians on the Yukon but had been sent to the new camp at Dawson. Father Judge visited the miners up the gold-bearing creeks and sold tickets on an insurance plan, the tickets entitling the holder to be cared for in case of disablement or during illness. The tickets sold at from one to four hundred dollars, according to the length of time insured and

the accommodations. Father Judge was a skilled medical missionary, and his emergency hospital was soon filled to the limit and all who came were cared for, whether able to pay or not.

Walter R. Hudson writes, in part, "... The magnificent hospitals of America with their clean rooms and quiet-spoken nurses never could hold more thankful patients than were stretched on the floor and the rough pole bunks of that big log room where caribou hides served for mattresses. Sanitation, such as we know it now, was an unknown and impossible quantity with us, for the smell of cooking food mingled with the odor of drying footwear, hanging as close to the sheet iron stove as safety would permit. Blankets, cots and sheets could not be obtained at any price. But an old friend, Captain McCarty of the S.S. John J. Healy, literally talked his passengers out of their beds. So enough bedding was taken from the steamers to take care of twenty bunks."

Dr. Young says that after the first month or two in Dawson there was not an orange, a lemon, an apple, a potato, an onion or an egg. Many miners made tea of cottonwood twigs and spruce needles to prevent scurvy, but at least one-third of the seven thousand men in the Klondike during the winter of '97-'98 were tainted with scurvy and hundreds of deaths ensued. The population more than doubled by the autumn of 1898 and sickness increased. A second hospital, the Good Samaritan, appeared to care for the overflow from St. Mary's. It is estimated that three thousand of the sixteen thousand inhabitants were ill at this time, five hundred of them with typhoid. Scurvy, pneumonia, meningitis and dysentery added to their horrors. Even a few cases of smallpox appeared. The death rate averaged about five per day during August and September, the highest in one day being eighteen.

The following excerpt is quoted from the *Morning Oregonian*: "Dawson, Aug. 14, 1898. A bomb-shell larger than any that can be fired by the Oregon was dropped last week into the camp of the American doctors here. Since the sick season opened Drs. George W. Merryman, J. J. Chambers, H. Green, W. Leisen and Mrs. Gay have been enjoying a most lucrative business; too good, in fact, to please their Canadian brethren, and the latter formed an association, employed counsel, and had the Americans arrested for practicing medicine contrary to law. All five were arrested and fined one dollar except Dr. Green, who advertised as a specialist. Dr. Merryman and Dr. Gay, of Chicago, failed to take down their signs and they were ar-

rested the second time and fined fifty dollars and costs." They were later allowed to practice.

The Nome gold rush began in the spring of 1899. The cares and trying experiences of this stampede exceeded those of the Klondike. Much gold was found in the sands of the beach and men hurried desperately to work these diggings. The great camp was too busy to pay attention to sanitary conditions or to secure pure water supply. Typhoid was inevitable. At the end of the first week it was estimated that one-third of the men of Nome had typhoid fever. Men died in lonely tents with no one to care for them. The steamers which were coming and going were taking to their homes hundreds of men who had been sick.

Mr. Wirt, a missionary sent by the Congregational Church, brought in materials from Seattle for the erection of a hospital at Nome. Nurses, medicines and an additional physician arrived at the same time.

Dr. Hall Young, of whom mention has been made before at Wrangell and on the Klondike, was at this time at Nome. He was working night and day helping take care of the typhoid cases, and finally came down with it himself. Dr. Davy was his physician. After seven weeks of the fever, Dr. Davy pronounced him beyond hope because he was unable to keep anything on his stomach. His friends came to the rescue by securing some milk for him from the only cow in the town.

Later in the summer an epidemic of smallpox and one of German measles frightened the incomers and delayed the landing of thousands. However, reports of illness had been so exaggerated that it is said six times as many nurses as could find employment came, as well as many physicians. In June, 1900, smallpox was quite general in the Alaskan ports of entry, spreading with frightful rapidity. There was a high mortality and the disease did not disappear for several years.

In April, 1911, Dr. M. H. Foster of the Federal Public Health Service was detailed to make a study of disease in Alaska and to look into a report that there were cases of leprosy. The leprosy cases turned out to be syphilitic. According to Alfred C. Reed, "Foster concludes that apparently little lasting effect can be expected from a campaign of education and moral suasion. More vigorous measures are demanded. Alaska should have a commissioner of public health to enforce a thorough sanitary code. Authority has been asked for the surgeon-general of the Public Health Service to appoint one of the officers of that corps to serve in such a ca-

capacity. In accord with this suggestion Dr. Emil Krulish has been detailed for this duty and has assumed charge of measures for the relief of the natives."

From a report made by Assistant Surgeon H. E. Hasseltine as a result of observations made at points in Alaska while detailed on the revenue cutter *Rush* from April 8, 1910 to March 20, 1911, I quote: "The following information relative to the prevalence and geographic distribution of poliomyelitis was given me by the physicians named, the cases occurring in their private practices. Dr. L. O. Sloane, of Juneau, reported one case which occurred at Douglas in August, 1910; Dr. H. C. DeVighne, six cases at Douglas during October and November, 1910; Asst. Surg. J. A. B. Sinclair, U.S.N., one case taken sick at Chicagoff in November, 1910. In addition to the above I saw one case of paralysis of two years' standing which followed an attack of the disease at Yakutat in May, 1910. All the cases occurred in children. . . . There have been epidemics of measles, each having a frightful mortality. One occurred at Tatitlek, on Prince William Sound, in July, 1910. Dr. Romig informed me that when measles was epidemic at Bethel a few years ago there were not enough men able to be about to bury the dead."

In 1913 Dr. Emil Krulish was on the Coast Guard cutter *Bear* (now in Antarctica with Admiral Byrd) when it was caught in the Arctic ice off Point Hope. August 8, 1913, he repaired a hare-lip on a sixteen-year-old Eskimo boy, working under difficulties in the ship's carpenter shop. The job turned out very well; soon for the first time the boy could whistle to his dog. About the same time he amputated the leg of an Eskimo with a chronic tuberculous osteomyelitis, and had the ship's cobbler make an artificial leg. Only last year Dr. Krulish learned that this patient has since been known as the best polar bear hunter in Alaska.

In New Orleans, in 1912, before leaving on his new detail in Alaska, Dr. Krulish had observed the use of the new remedy, salvarsan. They were then charging fifty dollars per injection. He introduced the intravenous use of salvarsan in Juneau and also in the army posts at Haines and St. Michaels. Although the drug had been known previously by Alaskan physicians, it seems no one had been acquainted with the technic of its administration.

Dr. Krulish speaks of two cases of gas bacillus infection he contacted in Alaska. He was passenger on a boat bringing a patient under the care of a Dr. Davis to Wrangell. There was a gunshot wound

beginning to show crepitation. Amputation was done as soon as possible but the patient did not survive. Just two years later he was called in consultation to see a prohibition officer with a complaint of soreness and inflammation in the perineum. Crepitus developed and spread up both groins. Wide incision was made and the wounds packed with potassium permanganate and hydrogen peroxide. A good recovery followed.

In 1914 the first territorial legislature met under Governor Clark and a medical practice act was passed. Dr. Krulish was requested to draw up a sanitary code, which he did.

About 1917 the Bureau of Education placed a medical boat on the Yukon. Dr. J. W. Houston, whose reputation for successful hospital work at Juneau led to his being detailed for this particular work, served on the boat until he fell overboard and was drowned. With the help of his two nurses he had in about two months treated fourteen hundred patients and performed one hundred fifty-five surgical operations, largely for the removal of tonsils and adenoids. Seventy-four camps and towns along the Yukon had been visited.

In November, 1918, Governor Riggs of Alaska issued a call for help to combat the epidemic of Spanish influenza. Dr. Krulish headed a party of ten physicians and an equal number of nurses who left Seattle November 19, 1918, on the Spokane. They distributed themselves at various Alaskan ports and stayed several months, materially aiding in the combat and control of the epidemic, a portion of the notorious 1918 pandemic.

Amos Burg, famous Portland, Oregon, world-traveler and explorer, speaks highly of the work being done by the hospital at Fort Yukon. "Sick and ailing from the Porcupine, the Chandalar and all parts of the Yukon come to the Hudson Stuck Memorial Hospital at Fort Yukon to be treated. In 1929 Dr. Grafton Burke, who is courageously carrying on the work of the late Hudson Stuck, saved a little Indian girl whose scalp had been torn off by dogs."

Suicide is a fairly common cause of death among the white population of Alaska and is much higher than in the United States proper. The mortality statistics for 1929, issued by the Bureau of the Census, show that the rate in the United States is 14 per 100,000 population. The average among whites in Alaska during the years 1926-'30 was 52 per 100,000. Many white men go to Alaska with the idea of making a fortune, and as failure is more

usual than success, a great many of them resort to suicide as the easiest way out.

Likewise mental disease has a high incidence in Alaska. This is often enhanced by loneliness, bad weather with enforced idleness, and the rigors of environment. For the past thirty years all cases of mental derangement needing hospitalization, native or white, have been transported to Morningside Hospital, Portland, Oregon.

ALOPECIA TRAUMATICA

B. L. DORSEY, M.D.

LOS ANGELES, CALIF.

In America the bald head is in greater evidence than ever, notwithstanding the fact that the scalp is receiving more attention than any other part of the body. Thousands of so-called scalp specialists are fleecing the gullibles of millions annually for treatments of various sorts, none of which seem to be of the slightest avail in stopping the process of falling hair. Baldness may be considered a scourge of civilization, as it is practically unknown among savages. Why should it be so exclusively confined to men?

Lack of space forbids enumerating the various supposed causes, likewise the multitude of remedies, or even those with a money-back guarantee. However, it is well to consider the following: (1) Male and female scalps are identical, differing in size only. (2) Every germ found in a male scalp may also be found in a female scalp. The hair follicles, tissue and blood supply are identical in both sexes. (3) I know of no disease that is a common cause of permanent baldness. (4) A shiny female scalp is rare but there are millions of shiny male domes. (5) Symptoms and sequels of disease (omitting organs of generation) manifest no variation, regardless of gender. (6) Could any disease have special predelection for the upper anterior portion of the scalp?

Pathologic ductless glands have been recently exploited as a prominent cause of cranial alopecia. Again women are rarely affected, yet the glands are identical. If alopecia is caused by disease, I am at a loss to know why baldness rarely occurs behind the ears (only). The anterior part of the scalp is affected and the hair on other parts of the body is unmolested.

Unable to substantiate the version of our eminent authors regarding etiology, prognosis and treatment, I cite no references and quote no authors but present a new departure in considering alopecia traumatica, which I will definitely show is due to

an unsuspected hat. My findings are the results of dissection, craniometry and clinical investigation.

Heretofore research has been chiefly confined to the scalp and constitutional diseases. Craniometry has not been considered. It seems rather unjust to judge a young man apparently in the best of health, who is losing his hair on the upper front part of his scalp, as having a dreadful glandular disease.

The hair is lost only on that part of the scalp supplied with blood from the temporal arteries, and no other part of the body. Why the partiality? On the section of the scalp supplied by the occipital and posterior auricular arteries, the hair remains normal.

Alopecia traumatica is found in men whose skull is broadest over the temporal bones. Here the temporal arteries pass over the bulging bones in such a course that a hat cannot help compressing them to a dangerous degree. On the other hand, the long skull on the sides of which the hat does not fit so closely offers more protection to the blood supply of the scalp.

Dissection of the temporal veins and arteries in a bald head will reveal that the veins and arteries have been injured by the hat band pressure and the lumen diminished, distorted, and the walls contracted. Veins above this point are enlarged and arteries diminished in size.

Treatment (prophylactic). It is not possible to restore the hair of which the roots are already destroyed. The only treatment that is of any avail is to protect the hair still remaining. Remove the cause of baldness by preventing the slightest pressure over the temporal region. Merely stretching the hat is not sufficient as the point of contact over the temples remains the same, as the hat will resume its former shape when placed on the head.

Medicine taken internally or applied externally is absolutely useless. The man with a long skull flattened on the sides is rarely bald. The oval skull that bulges at the temporal region is usually bald.

There is a fortune awaiting the hat manufacturer who may devise a type of hat slightly more convex at this point, bridging over the temporal arteries and veins to permit normal circulation without perceptibly distorting the hat. Such a hat will be welcomed with avidity by the man with an oval or broad skull who certainly can anticipate baldness if he persists in wearing the present type of hat.

Should the gentler sex cut their hair short and wear a tight fitting hat, they will soon show symptoms of alopecia traumatica. However, in the future when proper protection is given the blood supply of the scalp, we can be confident of seeing no more bald headed men than women.

CENTRAL FRACTURES OF NECK OF FEMUR: ANALYSIS OF END RESULTS

In view of the work that has come out in the last ten years, especially the articles of Phemister and of Santes regarding aseptic necrosis of the femoral head following fracture of the neck of the femur, J. S. Speed, Memphis, Tenn. (*Journal A. M. A.*, June 8, 1935), is of the opinion that a study based on these facts might give interesting data regarding the cause for the high percentage of non-unions. Consequently a series of 100 acute complete central fractures of the neck of the femur adequately treated and traced to a final determination as regards union or non-union was selected. In complete or impacted fractures, and those cases in which death occurred or which were lost sight of, were discarded. Basing conclusions on the evidence afforded by the roentgenograms, the author made an effort to divide the series into those in which the head remained viable and those in which it became necrotic and to determine, if possible, the bearing this had on union or non-union. Roentgenologic and histologic study of the femoral heads removed during reconstructive operations in cases from this series and from other cases are used to illustrate and confirm the conclusions drawn. A tabulation of the results in this series showed 52 per cent solid bony union and 48 per cent nonunion. There has been a great deal of controversy regarding the causes of nonunion in fractures of the neck of the femur; therefore he discusses the more common explanations given under the heads of improper or incomplete reduction, insufficient immobilization and aseptic necrosis of the femoral head. Solid bony union with a viable head, nonunion with a living head and nonunion associated with necrotic heads are also discussed.

BREAST AND ARTIFICIALLY FED INFANTS: STUDY OF AGE INCIDENCE IN MORBIDITY AND MORTALITY IN TWENTY THOUSAND CASES

Clifford G. Grulee, Heyworth N. Sanford, Chicago, and Harry Schwartz, Kenosha, Wis. (*Journal A. M. A.*, June 1, 1935), further discuss the incidence of morbidity and mortality among 20,000 artificially and breast fed infants and the conditions under which these statistics were obtained. In the respiratory infections, it will be noted that for the first five months of life, while there is not a great deal of difference in the total incidence, there is a rise in all groups to the fifth month. The morbidity decreases after the sixth and seventh months in the breast and partially breast fed groups, while in the artificially fed the rise is steady through the ninth month. In the breast and artificially fed groups there is a fall after the seventh month. The gradual rise in morbidity from all groups for the first six months might be explained in two ways: First, the infants are exposed to repeated infection. Second, some immunity may be inherited from the mother, which gradually lessens with age. In the breast fed and partially breast fed after the seventh month there is a gradual decrease in morbidity. Since at this time there is a marked rise in the curve for the artificially fed, it would seem likely that breast milk continued the immunity longer than the sixth month, while this function was removed in the artificially fed. In the gastrointestinal morbidity, there were not enough breast fed infants with these disorders to calculate the percentage. The miscellaneous morbidity is somewhat similar to that of the respiratory disturbances. All types show a rapid rise to a peak at 5 months. The artificially fed curve, however, continues to rise to the eighth month and then falls. In general in all types of feeding the morbidity from infection increases each month until the fifth month. From the mortality curves the breast fed baby appears to be in danger only in the first month of life.

NORTHWEST MEDICINE

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EDITORIAL

LAY SUPERVISION OF MEDICAL PRACTICE

Mr. John A. Kingsbury, who until recently was secretary of the Milbank Fund, speaking in Montreal before the Federation of Settlements, Inc., charges that groups claiming to represent the American Medical Association and certain state and local societies are resorting to political chicanery in their campaign against compulsory health insurance. He says he has been falsely accused by certain groups of favoring state medicine. He calls these people who offended him "merchants in medicine." He says that he and his former associates in the Milbank Fund have always, in writing and speaking about health insurance, made it clear that they were interested in promoting the personal relationship between patients and physicians and they did not favor state medicine in America. However this may be, Mr. Kingsbury has shown great enthusiasm for Soviet medicine, and one hearing him talk on this subject or reading his publications could hardly help feeling that this was his ideal. He also charges that certain groups of the "American Medical Association and certain state and local societies resorted to every trick known to politicians and political organizations to prejudice the people and sway legislators in an effort to stem the rising tide of public sentiment favoring health insurance. If the medical politicians continue such tactics we are likely to get health insurance systems designed and set-up without the cooperation of real leaders in medicine, which would be bad both for the public and the medical profession and we may get outright state medicine of the Soviet pattern which would have little chance of success under our economic order."

Mr. Kingsbury and others who are enthusiastic about health insurance and state medicine seem to assume that the rank and file of the medical profession are favorable to one or the other of these systems and those who oppose them are in the small minority. Those of us who are in daily contact with the rank and file know this is not true, but no effort of ours to set them right has the least effect on these enthusiasts. Those who have prac-

ticed medicine for years know there is no system as cheap, efficient and satisfactory as that in which the physician deals directly with the patient. It is a simple arrangement and gives the greatest freedom to both patient and physician and there is no organization to be financed and kept from meddling in the affairs about which it knows little. We are being told again and again that, unless we accept some of the systems proposed by these enthusiasts, we will have state medicine whether we want it or not and these people go on doing the best they can to bring about discontent with the present way of practicing medicine. Many people are enthusiastic about some such arrangement when in a state of good health, but when sick they are likely to long for the old plan that allows the intimate relationship between them and their physicians without supervision, rules and regulations.

Like hundreds of others Kingsbury has a plan he thinks will work. He proposes that all families with incomes of less than \$3000 a year be compelled to take health insurance, the cost to be borne 40 per cent by the employee, 40 per cent by the employer and 20 per cent by the state. This, of course, would necessarily make positions for many politicians, of whom Mr. Kingsbury seems to have so low an opinion. He proposes that professional problems shall be under the supervision of physicians, but financial and executive matters shall be in the hands of representatives of the people. Those who have had experience in such matters realize that professional problems are so intermingled with financial and executive that they are not to be separated, and if one could be trained in only one of these fields it would be much more important to put financial and executive features in the hands of one trained in medicine. These financial and executive problems are not beyond the comprehension of a competent medical man.

For a long time we have been teaching people to buy on the installment plan and to enjoy while paying. Perhaps, if we would teach them for a time to pay as they go, a larger percentage would be able to meet their medical bills. The installment plan of buying may be a temporary stimulation to business, but it also makes periods of depression harder when they come and people gradually have less restraint and less sales resistance. Health insurance will not eliminate any of our major problems. If our industrial system has so impoverished our people that they are unable to take care of their health, it would seem that this is what needs reforming instead of our system of caring for the

sick. Bismark and Lloyd George both used health insurance as a means of keeping people from thinking of their economic troubles. Perhaps there are those in this country who are not averse to using it for the same purpose. There would seem to be little hope for a democracy if the voters do not have sufficient intelligence to make provision for such emergencies as sickness.

Those interested in socialization of medicine generally agree that physicians are not overpaid and usually promise that the remuneration will be as good or better than at present. This, however, is not the primary interest of the profession. The continued advancement of medicine and the opportunity to meet problems that are likely to arise in any illness, without the killing effect of supervision, are the things of paramount importance. Physicians in many communities are fully alive to the necessity of caring for people with low incomes, despite the fact that they are in no way responsible for their condition and many carefully planned experiments are being tried. The information that is being accumulated in this practical manner is more valuable than any of the so-called "studies" that have been made by those outside the profession. We have perhaps been unduly tolerant with those who make it their business to tell us how we should care for the sick.

THE AMERICAN MEDICAL ASSOCIATION AT ATLANTIC CITY

For the first time in history the Canadian Medical Association and the American Medical Association held a joint meeting. A precedent was established which undoubtedly will be repeated from time to time in the future. Much good will and good fellowship grew out of this joint meeting. The officers of the Canadian Medical Association visited the House of Delegates of the A. M. A. and expressed the hope that in the next five years another joint meeting might be held in Canada. On Monday evening a dinner was given by the local county society to the combined House of Delegates of the respective associations. At this dinner, Senator James Hamilton Lewis of Illinois, formerly in the House of Representatives from Washington, made a very interesting and entertaining address, stressing the point that physicians should be a potent political influence in the nation as they represented a group of citizenship in which the public still retained a justifiable faith.

Meetings of the American Medical Association are always rather overwhelming, in that there is so

much going on in so many different places that one can only participate in a small part of it. The scientific exhibits this year were excellent and probably no feature of the meeting was more interesting. Nothing that took place at Atlantic City was of as much general interest to the profession as what stand the House of Delegates would take on economic problems. The House had gone on record as being very definitely opposed to any form of national or state health insurance at a special meeting in Chicago in February, 1935, and no change in that attitude was even considered. The Bureau on Economics reported that there are now in operation over 200 local bureaus for the care of the low income brackets of people. They had information concerning all these plans, but had no plan to offer as a substitute for the present system of the practice of medicine. However, they would gladly give advice and information to any local society that wanted to set up an organization for the care of the lower income groups of people.

On Thursday, at the last session of the House of Delegates, our own J. Tate Mason was made President-Elect by a comfortable majority. This is the first time the Pacific Northwest has been so honored, Dr. Ray Lyman Wilbur being the last president from the Pacific Coast. Dr. Ralph Fenton of Portland was made a trustee.

At these meetings a daily bulletin is issued, listing the names of registrants from all sections of the country. At Atlantic City the following were present from our states of the Northwest: Oregon—R. A. Fenton, H. H. Foskett, C. A. Manlove, C. U. Moore, J. A. Pettit, Samuel Perlman, F. V. Stricker, J. H. Fitzgibbon, H. G. Parker of Portland; Mary B. Purvine, G. R. Vehrs of Salem; E. L. Zimmerman of Eugene. Washington—Roger Anderson, J. M. Blackford, D. H. Houston, B. T. King, J. T. Mason, J. F. Le Cocq of Seattle; C. H. Waring, Frances Rose of Spokane; K. D. Graham of Aberdeen; W. L. Jackson of Burlington; J. P. London of Yakima; E. R. Tiffin of Enumclaw. Idaho—J. N. Davis of Kimberly; E. N. Roberts of Pocatello.

THE SPOKANE MEETING

The annual meeting of Pacific Northwest Medical Association at Spokane last month was attended by about two hundred registrants from Oregon, Washington, Idaho, Utah, Montana and British Columbia. These visitors from so many sections of the Northwest indicate the interest centered about the program and the guest speakers. For the most part these were younger representatives of the med-

ical teachers, indicating the prominence of a new generation of leaders in the profession. They represented institutions widely separated from each other, indicated as follows: Mallory from Boston, Davis and Luckhardt from Chicago, Brown from Rochester, Minnesota., Rankin from Lexington, Ky., and Wood from University, Va. Each is a specialist in a particular line of teaching and research and presented the latest advances in his special work.

The lectures of Dr. Davis indicated the advanced views on pathology and treatment of diseases and injuries of the brain and nervous system. The latest conceptions of the circulatory system were considered in a very attractive manner by Dr. Brown. Dr. Rankin is so well known to the profession that it is needless to state that his presentations of various surgical subjects were received with great interest and attention. Dr. Wood is one of the younger men, whose keen observations were appreciated in dealing with the rheumatic problem and cardiac conditions. Most physicians become rusty on the subject of physiology. Some recent advances in physiologic problems were presented by Dr. Luckhardt who conveyed much information unknown to the general practitioner. The subjects of asthma, hyperparathyroidism and peptic ulcer were discussed by Dr. Mallory who offered recent views on these subjects. The consensus of opinion was that the whole program was worthy of the attention of all who desire to keep abreast of the latest advances in medical science. The physicians of Spokane are famous for their cordiality and hearty welcome extended to visiting physicians. This was demonstrated by the various forms of entertainment presented which made every one feel at home with a realization that they were among friends.

WASHINGTON ASSOCIATION ANNUAL MEETING

The forty-sixth annual meeting of Washington State Medical Association will be held at Everett August 12-14. A meeting of the Trustees will be called for the evening of August 11. Monday, August 12, will be devoted to golf and registration. The golf tournament will be over the scenic eighteen hole course of Everett Golf and Country Club. The usual list of prizes will be offered and there will be competitions of various kinds. Usual golf dinner in the evening at the club house. All sessions of the meeting will be held in the Masonic Temple which will be convention headquarters. Public Health Meeting will be held in the auditorium of the Masonic Temple with provisions for an overflow meeting.

The meeting will be addressed by our guest speakers: Dr. Olin West of Chicago, Dr. Edward B. Shaw of San Francisco, Dr. Alfred H. Rowe of Oakland, also two or three local men. The feature of round table discussion inaugurated at Spokane will be continued. The Trustees and the House of Delegates will meet Tuesday and Monday mornings at 9:00. The general assemblies, at which the scientific program will be presented, will start at 9:30 a.m.

The tentative scientific program will be as follows:

GUEST SPEAKERS

- Olin West, Secretary of American Medical Association.
- Edward B. Shaw, San Francisco Calif., Acute Anterior Poliomyelitis.
- Alfred H. Rowe, Lecturer in Medicine, University of California Medical School; Food Allergy.
- C. Ulysses Moore, Research Professor of Pediatrics, University of Oregon; Studies in Rickets. Report of a Thousand Cases.
- H. W. Riggs, Vancouver, B. C.; Pain. Its Relation to Diagnosis.

WASHINGTON SPEAKERS

- David H. Lewis, Spokane; Brickbats and Bouquets.
- James F. Scott, Yakima; Extraperitoneal Cesarean Section.
- K. K. Sherwood, Kirkland; Prognosis in Chronic Arthritis.
- A. W. Hackfield, Seattle; Influence of Modern Psychiatry on Medical Thought. A Psychologic Interpretation of the Neurovegetative Syndromes, with Presentation of Case Material.
- H. H. Skinner, Yakima; Abruptio Placentae.
- Arthur C. Crookall, Seattle; Internal Hemorrhoids. Determination of Method of Treatment.
- C. E. Hagyard, Seattle; Acute Pancreatic Necrosis.
- Frank J. Clancy, Seattle; What About State Medicine?
- Horace J. Whitaker, Tacoma; Conclusions of the Pierce County Survey.
- W. W. Ebeling, Burlington; Rate of Absorption of Various Fluids by the Bowels.

The dinner and dance and card party will be held in the two auditoriums and the ladies' parlor in the Masonic Temple. A good sized space has been reserved for scientific and commercial exhibits which will be as attractive and instructive as in the past.

The State Medical Service Bureau and the Public Health League will hold their annual meetings during the session at hours to be named later.

GOLF

Washington State Medical Golf Association tournament, Monday, August 12, 1935. Place, Everett Golf and Country Club. Time, 8:30 a.m. and continuing all day. Annual Golfers' Dinner, 7 p.m., dining room of Everett Golf and Country Club. Golf headquarters in town will be the Monte Cristo Hotel.

The cost: registration fee, \$5. This will cover green fees, dinner, luncheon and incidentals except caddy fees.

Golfers are urged to come a day or more ahead of the meeting and play the course. A larger num-

ber than ever before is expected this year, and plans are under way to handle registration, pairing off, teeing off, scoring and clerical work so that everyone will have a good game and enjoy the day. It is essential to the success of the tournament that golfing members be on hand early so they can register and tee off promptly. When you register, designate the specialty in which you are actually principally engaged and your handicap. Further details of the golf tournament will appear in the program of the 1935 State Meeting.

VANISHING TYPHOID

The practical results of scientific medical progress are nowhere illustrated more strikingly than in the reduced incidence and mortality of typhoid fever. The recently published twenty-third annual report of typhoid in the large cities for 1934 lists the death rates from typhoid per 100,000 of population for ninety-three of the largest cities.* There is a uniformly decreased mortality rate over any previous year among cities scheduled in all sections of the country. There is an honor roll list of twenty-three cities in which no typhoid death was reported during the past year. One table includes death rates of eleven cities in mountain and Pacific states, among which Seattle and Tacoma reported no deaths. Eight others are included among "first rank" with death rates from 0.1 to 1.9. Spokane was the only city listed among "second rank" with a mortality of 2.6. One-third or more of the reported typhoid deaths of that city were stated to be of nonresidents. Doubtless transient laborers for mines and Grand Coulee dam account for this large mortality rate.

Many interesting statistics are included in this report. The two lowest divisions of total deaths were New England with fourteen and Mountain Pacific with thirty. Although the population of the former is a third less than the latter, nevertheless its death rate was the lowest on record. It is stated that, although the total number of typhoid deaths recorded was the same as that for the preceding year, there were three cities reporting their fourth consecutive year without a death. A comparison of these reports, published during the last twenty years, seems to justify the belief that a further reduction in the urban deaths may be anticipated for the future, even though the dream of the total elimination of typhoid may not be realized in this day and generation.

MEDICAL BROADCASTING

The universal use of the radio has provided an

opportunity for broadcasting all sorts of profitable as well as useless information which has not been overlooked by many grades of drug producers as well as practitioners on human ills. The ordinary listener has no means of discriminating between the valuable and valueless. In some cases the radio authorities have been culpable in permitting the broadcasting of information which has been faulty or false. It is encouraging to note of late the assurance that material, dealing with human ills and their treatment, will be carefully scrutinized in order that it may present qualities of truth and scientific preparation. It is well known that a number of radio stations recognize the value of properly supervised medical broadcasting and for that purpose have liberally allotted time to representatives of medical societies for this purpose. Advantage has been taken of this privilege for the most part for transmitting properly digested and conditioned information on selected subjects which have been well and profitably received. The Public Relations Committee of Washington State Medical Association has introduced in Seattle a dramatic feature which offers programs of information transmitted in an attractive manner. Under the direction of Dr. Frank J. Clancy, who has prepared the script, a series of episodes is being presented weekly, dealing with modern scientific treatment of the insane. Beginning with the work of Philippe Pinel in France and Dorothy Dix in the United States, episodes are broadcast, showing the humane progress in the treatment of mental disorders. It is contemplated continuing these graphic presentations in different lines of medical advancement which it is hoped will be favorably received by the listening public.

DR. FREDERICK EPPLER

In the death of Dr. Frederick Eppler of Seattle on May 25 the profession lost one of its ablest and most earnest scientific practitioners. As an internist and pathologist his eminence was outspoken. After graduating from Rush Medical School in 1906, followed by hospital internship, he practiced in Montana and Idaho with postgraduate work in Vienna and then located in Spokane where he continued for a number of years. He located in Seattle in 1927, but was obliged to retire from practice on account of illness in 1931. During his residence in Spokane he was appointed an associate editor of this journal which was continued while living in Seattle. It was always considered a credit to the journal to have one of his ability and qualifications as a member of the editorial staff. As his successor, Dr. Otto M. Rott of Spokane has been appointed associate editor.

* Typhoid in the Large Cities of the United States in 1934. Twenty-third Annual Report. J. A. M. A., 104:2093-2096, June 8, 1935.



PRESIDENT-ELECT J. TATE MASON

One of the great distinctions conferrable upon a physician is election to the presidency of the American Medical Association. Naturally this honor can be bestowed upon only a few individuals, commonly selected from the sections of largest population. Only thrice has it come to a practitioner on the Pacific Coast, the president having been selected from California in 1873, 1896 and 1923, on the last date the distinction being received by Dr. Ray Lyman Wilbur. Never until the present time has the selection been made from the Pacific Northwest, in consequence of which it was a distinguished honor given to Dr. J. Tate Mason of Seattle at the recent Atlantic City meeting of the American Medical Association, when he was chosen president-elect with election to the presidency expected in 1936.

The profession of Washington participates in this distinction obtained by one of its members and to him they unite to extend their congratulations and best wishes. Soon after Dr. Mason's graduation from the Medical Department of University of Virginia in 1905 he settled in Seattle and has long since become one of its best known practitioners. Owing to his intelligence and ability he has been recognized as one of the prominent and able surgeons of the Pacific Coast. His pleasing personality and wide acquaintance have brought to him many friends not only among the profession of his state but throughout the country. As president of the national medical organization he can be depended upon to execute the duties of his office faithfully

tion to the satisfaction of the profession and promotion of the best interests of the American Medical Association.

POSTGRADUATE LECTURES

WASHINGTON UNIVERSITY LECTURES. On page 8 will be found the announcement of the Annual Graduate Medical Lectures of University of Washington. The men composing the faculty and subjects of their addresses are given in full. Other information is also presented.

MEDICAL NOTES

OREGON

BASIC SCIENCE EXAMINATIONS will be inaugurated at Agricultural Hall, Oregon State College, Corvallis, July 27, to be followed by an additional session November 16. Beginning with 1936, basic science examinations in Oregon will be scheduled for the first Saturday following the 16th of March, July, and November. Examinations will be given in anatomy, physiology, pathology, chemistry and hygiene. Application blanks and general information may be obtained from C. D. Byrne, secretary, State Board of Higher Education. Applications for examinations must be filed not later than noon, Monday, July 15.

ELECTED TO NATIONAL OFFICE. At the meeting of Medical Women's National Association in Atlantic City last month Dr. Mabel M. Akin of Portland was chosen as president-elect. She will be elected president of the association at the 1936 meeting. Dr. Aiken has been prominent in civic and educational activities in Portland for a number of years. She has been active in women's medical organizations as well as those for girls and public welfare in her home city.

HOSPITAL RATES TOO LOW. The four leading hospitals of Portland have presented a statement to the city council protesting the low rate which has been demanded for the care of indigent patients. The city has announced that they will pay only \$1.50 per day which is much below the actual cost of maintenance, the continuance of which makes a drain on funds for general hospital purposes for the aid of those who cannot pay full rates. The hospitals do not request a profit from their business but insist that they should be paid a reasonable fee that will meet the actual cost per day for the patients treated for the city. As stated in the letter to city officials, "we believe that no hospital should seek or obtain a profit from the care of patients coming under the care of the city. It is, on the other hand, our position that the city should pay the cost of such service."

VISIT FROM NOTED HEART SPECIALIST. Physicians of Portland were favored last month by a visit from Dr. Wilhelm Dressler of Vienna, a leading world heart specialist who delivered lectures at Multnomah County Hospital. He considered many aspects of diseases of the heart. He stated there had been a revolution in medicine in the United States and that American medicine is on as high a plane as in any part of the world.

ADMINISTRATION BOARD APPOINTED. Governor Ross has appointed a three-man board to administer state property at Lava Hot Springs in southeastern Idaho. This is a health resort consisting of hot baths, sanatorium and other buildings, valued at \$100,000. The reason for establishing the foundation is to permit state acceptance of grants of land, buildings, etc.

NEW HOSPITAL CONSTRUCTION. The State Board of Control has authorized the immediate construction of an addition to the state hospital at Salem, to cost \$100,000. The original plan of using PWA funds has been abandoned. Furnishings for the building will cost \$14,000.

JACKSON COUNTY MEDICAL SOCIETY held a meeting at Medford June 5. Dr. and Mrs. A. F. W. Kresse were hosts for a dinner preceding the business meeting where President C. A. Haines presided. A group of doctors were present from Ashland. S. Gordon MacCracken of Ashland read a paper on "History of the Jackson County Medical Society."

WASHINGTON

DISTINGUISHED PHYSICIAN. On June 21 King County Medical Society held a special meeting in Seattle when it was addressed by Dr. Richard C. Cabot of Harvard University Medical School. He delivered a fascinating address dealing with errors of diagnosis. Every physician is familiar with his books and published papers, displaying a breadth of knowledge and wisdom accumulated from more than forty years of practice. It is comforting to any physician to hear his mistakes acknowledged by one of the greatest medical lecturers, and especially to realize how much can be learned from such errors. This visit of Dr. Cabot was a pleasure to all who had the privilege of meeting him in person and listening to his reminiscences. He recommends an avocation for every man, his particular line being music. To one group he described his own experiences with the violin and vocal music of past years which indicated his fondness for musical art and all which that implies. The profession has too few men of the character and attainments of Dr. Cabot.

STATE INSTITUTIONS TO BE ENLARGED. The \$3,000,000 construction program, passed on assurance of 45 per cent grants from the federal government under its new PWA program, will include appropriations for several medical institutions. Western State Hospital at Steilacoom will receive \$585,000 for two wards, kitchen, dining rooms and recreation hall. Eastern State Hospital at Medical Lake is given \$500,000 for two wards and alterations. Northern State Hospital at Sedro-Woolley will receive \$375,000 for clinical center and observation wards. State School for the Blind at Vancouver will have \$60,000 for dormitories and class rooms.

INFIRMARY CONSTRUCTION. Contracts have been called for construction of the new infirmary building for University of Washington at Seattle. It will be located on Stevens Way, north of Faculty Club, and will be four stories high, of fire proof construction. Offices, waiting rooms, laboratories and surgery will occupy the first floor while the second and third floors will each accommodate a general ward of thirteen beds and ten two-bed rooms.

NEW HOSPITAL PROPOSED. Plans have been drawn for a Kelso community hospital which it is proposed to construct at a cost of \$20,000. It will be of fireproof construction, one story in height, containing twenty beds, with modern accommodations and equipment.

HOSPITAL CLOSED. Longview General Hospital, which has functioned during the past three years under the direction of Mrs. H. Lawrence, the owner and superintendent, has been closed. Other hospital facilities are available for the city's requirements.

HOSPITAL LEASED. The Suburban Hospital in Auburn has been leased by Miss Mabel Lee and Miss Myrtle Hansen, graduate nurses with several years experience in hospital management. Drs. Owen Taylor and Irvin Finkenstein, who have long been connected with the institution, will continue with their supervision.

TUBERCULOSIS SANATORIUM ASSURED. Erection of a county tuberculosis sanatorium at Vancouver has been assured by the promise of \$17,500 from PWA funds which will be supplemented by \$11,000 to be raised by the county. The site for the institution has been secured and plans drawn for its construction.

FIFTY YEARS A DRUGGIST. Any enterprise or institution which has existed for a half century is worthy of mention. A druggist who has served his constituency for that period of time has done a notable service. Mr. James M. Lang of Seattle has record books of prescriptions filled by him for the past fifty years, numbering 1,300,000. When he established business in Seattle in 1885, it was a town of frame buildings, a few plank streets, and wooden sidewalks. All the doctors who have practiced in the city for a half century have been acquainted with him, respecting his probity and admiring his gentlemanly qualities.

OFFICES COMBINED. The offices of health officer and county physician of Spokane county have been consolidated with Arthur E. Lein, who has been county physician for the past year, appointed head of the department. Max S. Wright, who has served as assistant city health officer, has been appointed assistant to the combined office.

APPOINTED HEALTH OFFICER. A. M. Sonneland of Bellingham has been appointed health officer of Whatcom county by the county commissioners. He succeeds J. C. Wiik who has served in this capacity during the past two years.

TRI-COUNTY SOCIETY of Snohomish, Skagit and Whatcom held a meeting June 6 at Everett with about fifty-five doctors present. The afternoon was devoted to golf at Everett Golf and Country Club, honors being taken by Snohomish county medical society. After a 6:30 dinner a scientific meeting was held. C. L. Hoeffler of Everett gave an address on "History of the Conservation of Vision Society." Walter F. Hoffman of Seattle discussed the present activities of this organization. W. W. Ebeling of Mount Vernon discussed "Fluid Absorption of the Bowels." C. V. Farrell of Bellingham gave three case reports.

OKANOGAN COUNTY MEDICAL SOCIETY held a meeting at Omak, June 12, at the home of Lee Curran, resident Indian doctor. Frank H. Wanamaker of Seattle, read a paper, "The Malignancies of the Lower Jaw." Charles B. Ward of Seattle discussed different types of cancer of the face and neck and illustrated by lantern slides.

RETIREES FROM OFFICE. W. O. Wisner of Spokane has retired from the office of county physician which he has held for the past seventeen years.

R. A. RADKE, who has practiced for some time in Puyallup, has been appointed medical officer in one of the C.C.C. camps in the Fort Lewis district. He will be in charge of this work for some time in the future.

R. K. POMEROY has located for practice in Dayton in association with W. W. Day. He has been located for the past three years in Wenatchee after graduating from the Indiana University School of Medicine.

FRANK G. LEFOR, who has been in the government employ during the past year at Leavenworth, has located for practice at Goldendale, where he has taken the practice and equipment of F. H. Collins, recently deceased.

R. L. SIMPSON of Clear Lake has located in Sedro-Woolley, where he will join C. M. Hunter in establishing a clinic.

WEDDING. Dr. Lester L. Long and Miss Esther May Payne of Seattle were married in that city, June 29.

IDAHO

CORONER RESIGNS. E. H. Teed of Coeur d'Alene has resigned as coroner of Kootenai county to which he has been twice elected. The resignation was in consequence of his appointment as county health officer for the central and south portions of the county. F. F. Horning of Rathdrum will care for the northern portion of the county.

APPOINTED CORONER. J. J. Herrington of Worley has been appointed coroner of Kootenai county by the commissioners in session at Coeur d'Alene. He has practiced in this section of the country for many years and is widely known as an able physician.

MEETING OF NURSES. The biennial convention of Northwest Division of American Nurses Association was held at Boise, June 6-8. More than one hundred delegates from ten western and northwestern states were in attendance. Many subjects pertaining to the nursing problem were presented in papers and discussions. The plan was proposed of merging the northwestern with the southwestern division into one association.

G. T. PARKINSON, who has been located at Filer during the past two years, has begun practice at Buhl. Before practicing at Filer he was located in the Upper Snake River Valley.

OBITUARIES

✓ DR. FRANKLIN S. PALMER of Seattle, Wash., died June 5, after a prolonged cardiac illness, aged 70 years. He was born in Massachusetts in 1865. His preparatory schooling was obtained at Andover. Later he graduated from Harvard University and obtained his medical degree from the medical department of that institution in 1890. He located in Seattle in that year where he engaged in general practice. He served as health officer from 1893 to 1897. In 1899 he went to Korea, where he was surgeon for the gold mine Oriental Consolidated Company. During the following year he studied in Vienna and Paris, later locating in New York City. He was a musician of unusual ability, having made a special study of organ music. He studied under distinguished musicians both in Europe and New York. In the latter city he devoted special study to dermatology, also serving as organist in several churches. In 1907 he returned to Seattle, where he was established as organist and choir leader in St. James Cathedral, continuing in this capacity until the time of his death. He also practiced dermatology until ill health of recent years caused his retirement. He had many friends both among physicians and musicians who recognized his outstanding ability and lament the loss of one distinguished in both professions.

✓ DR. FREDERICK EPPLEN of Seattle, Wash., died May 25 of angina pectoris after an illness of more than four years following encephalitis lethargica, aged 55 years. He was

born in 1880 in Dennjacht, Germany. He attended preliminary schools at Omaha, Neb., and began the study of medicine at the university of that state. He received his medical degree from Rush Medical College, Chicago, in 1906. After an internship in Cook County Hospital he practiced in Miles City, Mont., and St. Joe, Idaho. After postgraduate work in Vienna he located in Spokane for the practice of internal medicine in 1912, where he established a large practice. In 1927 he moved to Seattle, where he continued in practice until indisposed by illness in 1931. He was an outstanding member of the medical profession, conspicuous for his diligent application and research in medical problems. He was especially interested in pathology, being pathologist of King County Hospital when disabled by illness. His superior work in this line of endeavor served as an inspiration for other members of the profession. His incapacity and death have been a distinct loss to the medical profession and his many friends among physicians and laymen.

DR. RICHARD E. SHURTZ of Buhl, Idaho, died at Twin Falls May 21, after a long cardiac illness, aged 64 years. He was born in Illinois in 1870. He graduated from Rush Medical College, Chicago, in 1897, later studying at Johns Hopkins and Harvard. He practiced at Champaign, Ill., with his brother for fifteen years. In 1913 he located at Boise. He served for two years as city physician and eight years as Ada County physician. He served during the World War, receiving a captain's commission. In 1926 he retired from practice on account of illness and moved to Buhl, but resumed practice in 1929 which he continued until about six months ago.

DR. EARL S. PRINGLE of Portland, Ore., died May 26, aged 66 years. He was born in Vermont in 1869. He received his medical degree from Hahnemann Medical College and Hospital of Chicago in 1893. He practiced for a number of years in Michigan and Idaho. He located for practice in Portland in 1924, where he continued until the time of his death.

BURNS PRODUCED BY RADIO SHORT WAVE AND ULTRA-SHORT WAVE THERAPY AND THEIR PREVENTION. David H. Kling, with a case report of a severe burn by George O. Berg, Los Angeles (*Journal A. M. A.*, June 1, 1935), points out that with the high frequencies generated by radio short wave and ultra-short wave apparatus it is not necessary to apply the current directly to the body through metal electrodes as in diathermy. It is sufficient to place the part to be treated in the electrical field between insulated plates. Heat is generated chiefly by displacement currents within the tissues, which act as a dielectric. This mode of application conveys the impression that the danger of burns is eliminated. The simplicity and safety of short wave therapy is played up in the sales campaign. Nothing is more erroneous. Burns have been observed clinically and they have been produced experimentally. Histories of six cases in which burns developed in the course of radio short wave and ultra-short wave therapy are given. Fully developed rats were used in experimental burns. On the bases of his observations and experimentation, the author believes that the surface effect, the size of the electrodes, perspiration and the acro-effect (the action of a short wave electrical field on pointed parts) seem to be responsible for the production of burns in the short wave electrical field.

STATE DEPARTMENTS OREGON

ACTIONS OF OREGON COUNCIL

Portland, Ore., June 14, 1935.

The June meeting of the Council of Oregon State Medical Society was held June 5, at Campbell Court Hotel. A communication was read from the American Committee on Maternal Welfare, Inc., Fred L. Adair, M. D., Chicago, Chairman. Its membership is made up of all those national and sectional societies having to do directly and indirectly with the betterment of maternal and prenatal care, including the American Gynecological Society, American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Section on Obstetrics and Gynecology of the American Medical Association, the American College of Surgeons, and the Pacific Coast Society of Obstetrics and Gynecology, and many others. The committee has published certain standards. The aim is "the protection of the health of mothers and their offspring . . . , to improve and generalize the standards and methods of training physicians, nurses and others dealing with problems of maternity," etc.

It is desired that a state committee be appointed in each state with local committees in each county society so that the maternal welfare program would become an official part of the activities of the various state and component societies. Another plan provides for the appointment directly of members to serve as a committee in a state where the state society does not cooperate, these to function through county societies.

The first work to be undertaken will be an analysis of the various local situations to evaluate their adequacies and to plan for their improvement. The details will vary with each community. The main purpose will be "to see that all prospective mothers receive adequate prenatal care; that facilities for proper medical and nursing care are made

available for home deliveries; and that proper hospital facilities are available for those cases presenting complications which require hospitalization." The first meeting was called for June 12, at Atlantic City, during the session of the American Medical Association.

Dr. G. C. Schauffler, Chairman of the Committee on Contraceptive Legislation, made a rather extensive report. The committee recommends "rescinding present drastic restrictions relative to the mailing of contraceptive literature and materials." He presented an extensive report from the National Medical Committee on Federal and State Contraceptive Legislation.

On recommendation of the American Medical Association, our Executive Secretary, Mr. Clyde C. Foley, talked to the senior class of the University of Oregon Medical School on sickness insurance.

The Oregon branch of the Society for the Control of Cancer was asked for a more detailed statement of policy before final endorsement is given to their plan of action. In principle, however, the Council approved their policy.

The program committee for the next meeting at Gearhart in September reported a very high type program in progress, consisting of local and outside speakers.

The Council authorized the continuation of the bulletin for another six months and a vote of thanks was given to the committee for the excellent bulletin which they have given us.

The Council reaffirmed its action in recommending that a physician be appointed on each county relief committee and notice of this action was sent to the Governor.

Dr. A. M. Kinney, first and fiftieth president of the Society, made a few well chosen remarks.

ADALBERT G. BETTMAN, *Editor*.

WASHINGTON

DEPARTMENT OF PUBLIC WELFARE

Everett, Wash., June 22, 1935.

The outstanding news event of the past month is the effort being made on the part of the State Department of Public Welfare and the profession to get together on a more uniform and satisfactory program of medical relief. About twenty of the thirty-nine counties now participate in the medical relief program as it has been administered the past eighteen months. Different arrangements have been made in different counties and this has been a source of some dissatisfaction. A new set-up in the whole relief program is at hand and, as certain features of this will undoubtedly be permanent, it is thought that more uniformity will result if an advisory or liaison committee can be established, consisting of one representative from each of the following associations: Washington State Medical Association, Washington State Dental Association, Washington Graduate Nurses' Association, Washington State Hospital Association, Washington Pharmaceutical Association.

Mr. Ernst stated, at a conference with representatives of these associations held in Seattle, Saturday, June 22, that in the future there will be the following relief departments or classes: (1) dependent children, (2) old age pensioners, 65 years and over, (3) all "unemployables" between these

ages, (4) the "employables" who will all be given Federal employment at \$50 to \$75 per month and will be "on their own." The first three classes will be indefinitely on relief and arrangements will have to be made for medical relief for them.

What will we do about it is the question. Before this is in the hands of the profession, I expect to have a meeting of the Board of Trustees to discuss this question and to arrive at our conclusion as to what the medical profession feels is adequate relief and what compensation should be expected. They will also probably select the member of the advisory committee mentioned above. All this for your information.

The Public Relations Committee is putting on a playlet each week over KJR on Thursday at 4:25 p.m. These will become increasingly popular, I am sure, and be of value in combating some of the propaganda for state medicine. I am informed that the subject of state medicine has been chosen for debate in all the high schools of the United States this winter. It is high time we were getting busy.

And now a closing word on the State Meeting at Everett, August 12, 13 and 14. The tentative program appears elsewhere in this issue. We are looking for a big meeting

and a glance at the program will show that it is to be profitable. The date has been selected because we feel sure of good weather in August, and we want our hot weather friends from east of the mountains to get a taste of the cool summer weather on Puget Sound.

NATHAN L. THOMPSON,
*President, Washington State
Medical Association.*

WOMAN'S AUXILIARY THE ANNUAL MEETING

The fourth annual meeting of the Woman's Auxiliary to Washington State Medical Association will be held in Everett, August 12-14. At present I will not give a complete program, but notices, credential cards, programs, etc., will be mailed in ample time. We hope this will make a vacation trip and that all are planning to spend the three days at the annual meeting which is held at the same time as the State Medical Association meeting.

Monday, as usual, is golf day. The women will play at Cedarcrest Golf Course. Golf and luncheon, \$1.00. Tuesday and Wednesday mornings will be devoted to business, reports and lectures. The program committee is pleased to

announce the following speakers: Dr. Olin West of Chicago, Secretary of American Medical Association; Dr. C. Ulysses Moore of Portland, and Dr. Frank J. Clancy, Chairman Public Relations Committee of Washington State Medical Association.

The following will give an idea of our playtime. Luncheon on Tuesday will be at Canyon Creek Lodge, Granite Falls. The afternoon will be devoted to golf and bridge. On Tuesday evening are the dinner and dance given by the Medical Association. Wednesday's luncheon will be at the Everett Golf and Country Club. This will be followed by the usual Wednesday program. Registration fee of \$2 covers the luncheons for Tuesday and Wednesday.

A cordial invitation is extended to all doctors' wives to attend all the meetings and join with us in our social events.

The Executive Board will meet on Monday; notices will be mailed later. The success of our meeting depends upon our interest and attendance.

MRS. NATHAN L. THOMPSON, *President,
Woman's Auxiliary, Washington
State Medical Association.*

BOOK REVIEWS

THE DOCTOR'S BILL. By Hugh Cabot. 313 pp. \$3.00. Columbia University Press, New York, 1935.

The author adopts a unique title for his book to discuss many problems of medical practice. He contrasts conditions in 1890 and 1930, citing the revolutionary changes which have occurred, owing to the astounding discoveries in medicine, especially pertaining to bacteriology and pharmacology. A discussion of modern medical diagnosis and its requirements includes references to the changing populations from country to city with the consequent demands on the time and capabilities of the doctors of the present day. While the general practitioner or family doctor of the past is often lauded, the author shows that it is impossible for him to exist at the present day during these changing circumstances. He states that specialization is a translation into action of the inevitable forces making for the subdivision of labor. He believes that it is best accomplished through group practice. The principle involved is said to be fundamentally sound and groups are certain to increase in number. Under modern conditions he believes that first class medical care, both to the family and individual, requires a team and not an isolated practitioner. He discusses workmen's compensation acts, comparing those of different states and indicates their influence on medical practice. It is stated that the average gross income of physicians of this country is a little over \$9000, the average net in the neighborhood of \$5000. Fifty per cent of the physicians received only 17 per cent of the total, while 10 per cent received 36 per cent. For every physician netting \$10,000 there are two netting less than \$2,500. Emphasis is placed on the increase in number of patients demanding free treatment with decreasing incomes to many of the profession. There is a discussion of health insurance in Great Britain and continental Europe and evidence that none as they exist are applicable to the United States. The author thinks it essential that some sort of a system should be built upon a foundation of our own. The author is very critical of our

medical leaders and their attitude towards the report of the Committee on the Cost of Medical Care. Although the solution is not offered for existing problems pertaining to the care of the many classes of people whose illnesses must be attended by the medical profession, the book presents an interesting survey of conditions which will repay reading by anyone interested in this all absorbing problem.

THE TREATMENT OF RHEUMATISM IN GENERAL PRACTICE. By W. S. C. Copeman, M.A., M.B., B.Ch. (Cantab.), M.R.C.P. (London) Hon. Physician, B.R.C.S. Clinic for Rheumatism, Peto Place; London, etc. 228 pp. \$3.25. William Wood & Company, Baltimore, 1935.

The author says this is not to be considered as a textbook. An effort is made to present a brief summary of all methods of treatment from which relief or cure has resulted. It is hoped the reader will no longer consider rheumatism as an "act of God," but that it may now be treated with prospect of success. After considering acute rheumatic fever and chorea and their treatment, Part II deals with non-articular rheumatic conditions such as lumbago, sciatica and neuritis and divides chronic arthritis into the rheumatoid or atrophic and osteoarthritis or hypertrophic type. Drugs are comparatively useless in atrophic arthritis except for dulling pain or producing sleep. Vaccine treatment has proved disappointing in the experience of most impartial observers. While nonspecific protein therapy has been much overemployed and has its indications, the author does not consider rheumatoid arthritis to be one of them. Colonic lavage is helpful in some cases. Different forms of physical methods, many of which he considers quite important, are described in detail. Treatment of osteoarthritis is largely palliative. Diet is of considerable importance, but drugs are of little value except as analgesics. Physical treatment is the sheet anchor of success by relaxing muscle spasm, increasing blood circulation and encouraging movement without weight bearing. Chapters are devoted to medicinal treatment, diet, baths, manipulation and other physical procedures.

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ANNOUNCES

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Two weeks' Intensive Course starting May 6.

FRACTURES AND TRAUMATIC SURGERY

Intensive Ten Day Course starting June 3 and October 14.

GYNECOLOGY AND OBSTETRICS

Four weeks' Intensive Course starting June 3. Attendance limited.

ELECTROCARDIOGRAPHY AND HEART DISEASE

Two weeks' Intensive Personal Course by Dr. C. C. Maher starting August 5.

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During the months of June and July, Intensive one-week Courses in Clinical Cardiology and Electrocardiography, Diseases of Chest, Gastro-Enterology, Allergy and Internal Medicine will be offered by members of the Medical Staff.

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Laryngoscope, 1935, XLV, 149-154★

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Pharmacology of Inflammation: III. Influence of hygroscopic agents on irritation from cigarette smoke.

Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245★



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NAME M.D.

ADDRESS

CITY STATE

SURGICAL PATHOLOGY OF THE PERITONEUM. By Arthur E. Hertzler, M.D., Surgeon to the Agnes Hertzler Memorial Hospital, Halstead, Kansas, etc. 201 Illustrations. 304 pp. \$5.00. J. B. Lippincott Company, Philadelphia, Montreal and London, 1935.

This is a smaller, more up to date treatise of the author's earlier work on the peritoneum which was published in two volumes. As with all his writing, the character of the author is well expressed in this monograph. The peritoneum has long been a subject in which he has been keenly interested. The scope of this volume embraces the anatomy and physiology of the peritoneum, healing of peritoneal wounds, peritoneal adhesions, general and local peritonitis, peritoneal abscesses, diseases of the mesentery, omentum, and tumors arising from the peritoneum, mesentery, omentum and retroperitoneal space. The knowledge of the abdominal surgeon must ineffably be stimulated by reading this latest monograph.

LEIBLY.

DIET AND LIKE IT. A Guide to Pleasant and Healthful Dieting for Those Who Would Reduce and Those Who Would Not Gain. By Mabel E. Baldwin, Ph.D. 230 pp. \$2.50. D. Appleton-Century Company, Inc., New York, London, 1935.

The author says this book is for overweight people who seriously wish to avoid the accumulation of unsightly and unhealthy fat. The only right way to reduce is by correct dieting. While exercise will hasten this result, alone it is without effect. The menus of this volume call for no preliminary study of the principles of nutrition. There is no need for counting calories because this is provided for. Part I includes menus for reducing diet, Part II dealing with nature of correct diet. Special menus are provided for those whose height is less or more than five feet six inches. No food must be eaten between meals and no drink but water. There is a discussion of proteins, fats, carbohydrates, minerals and vitamins. Drugs, exercise and various apparatus for weight reduction are discarded as valueless. This volume can be read with profit by the layman as well as physician.

THE BIOCHEMISTRY OF MEDICINE. By A. T. Cameron, M.A., D.Sc., F.I.C., F.R.S.C., Professor of Biochemistry, Faculty of Medicine, University of Manitoba, etc., and C. R. Gilmour, M.D., C.M., F.R.C.P. (C.), Professor of Medicine and Clinical Medicine, University of Manitoba, etc. Second Edition. 31 illustrations. 518 pp. \$6.00. William Wood & Company, Baltimore, 1935.

This volume is designed both for the student and the physician who received no special instruction in the medical application of biochemistry. So many papers have appeared in the literature on this subject that the up-to-date physician needs a book containing the essentials of this subject. The authors have dealt alone with most of the outstanding biochemical work that is of medical interest. New subjects in this volume include von Gierke's glycogen disease, tyrosinosis, dinitrophenol treatment of obesity, the glycine treatment of myasthenia gravis and the pentosenucleotide treatment of agranulocytosis. Among the many diseases considered from a biochemic basis are chapters dealing with presence in urine of sugars other than glucose and their significance, nondiabetic glycosurias, abnormal fat metabolism other than in a diabetes mellitus, metabolism of proteins and protein derivatives, metabolism of water. Metabolism of

inorganic compounds and ions are dealt with in different chapters with their various considerations. Each chapter concludes with a comprehensive summary and a list of references covering all the topics considered in each. This is a valuable work for every physician wishing the latest information on this subject.

INTERNATIONAL CLINICS. A Quarterly of Clinical Lectures and Especially Prepared Original Articles. By Leading Members of the Medical Profession Throughout the World. Edited by Louis Hamman, M.D., Visiting Physician, Johns Hopkins Hospital, Baltimore, Md. 327 pp. \$3.00. Volume II. Forty-fifth Series, 1935. J. B. Lippincott Company, Philadelphia, Montreal, London.

There are eighteen contributors to this volume, including representatives of teaching institutions and hospitals of this country, with others from China and England. The articles cover many subjects in medicine, surgery, obstetrics and pediatrics. Pneumonokoniosis is considered by Gardner, with a discussion of various causes of this condition. There are discussions of heart pain, both of organic and functional origin. Chronic bronchial stenosis by Eloesser reviews a number of causes of this condition. Diagnosis and treatment of pyuria in childhood by Wilkins introduces a subject coming under the observation of most physicians. This volume is well worth one's perusal.

THE TECHNIQUE OF POST MORTEM EXAMINATION as Practiced in the Pathological Institute of McGill University, at The Royal Victoria Hospital, Montreal. Compiled by D. R. Coman, M.D., C.M., Assistant to the Institute and Demonstrator in Pathological Anatomy. 47 pp. \$1.40. Renouf Publishing Company, Montreal, 1934.

Anyone interested in performing postmortem examinations will find this little book replete with valuable information. It offers suggestions which are invaluable for one wishing to perform a correct autopsy. The two fundamental rules are, "first, that no organ should be removed before its relations and the conditions of afferent and efferent vessels and ducts have been ascertained; second, that no organ should be removed, the removal of which will interfere with the subsequent examination of other organs." The section on external examination offers suggestions which anyone should know, but many of which are commonly overlooked. Each organ of the body is considered in detail, with instructions how it should be examined and removed. There is repeated emphasis on the fact that nerves, vessels and other structures should be identified before being cut. There are numerous illustrations showing exactly how different structures should be approached and removed. It will be profitable for anyone doing this work to possess this volume.

AIDS TO EMBRYOLOGY. By Richard H. Hunter, M.D., M.Ch., Ph.D., M.R.I.A., Lecturer in Anatomy, Queen's University, Belfast, etc. 172 pp. \$1.25. William Wood and Company, Baltimore, 1934.

This little volume presents the essential facts of embryology in condensed form. The effort is to give in short space the important changes occurring in human development so that one may appreciate the commoner abnormalities which are encountered. It is a handy little volume from which one may readily acquire facts which may help to remind him of the principles of embryology.

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SOME ASPECTS OF CHRONIC NEPHRITIS *

FRANK R. MADDISON, M.D.

TACOMA, WASH.

It is surprisingly uncommon to find chronic nephritis mentioned as the primary cause of death. No doubt it is due to the fact that Bright's disease so frequently accompanies some other condition which is the chief cause of symptoms and which eventually closes the picture, that the renal lesion is completely overlooked as the underlying and significant cause. Holmes,¹ in reviewing 699 cases from the Medical Department of Syracuse University Hospital, found only four instances where chronic nephritis appeared as a primary diagnosis.

There is a prevalent idea that the absence of edema, albuminuria or hypertension rules out the existence of nephritis, just as there exists the misconception that any of these is tantamount to Bright's disease. Nephritis of advanced grade may exist without the slightest indication of edema, while marked edematous states are usually seen in cardiac decompensation without the necessary association of a renal lesion. True renal edema is usually associated with marked albuminuria which has been severe enough to bring the level of plasma protein below 4 per cent or the serum albumin below 1 per cent. The edema clears, if the normal protein level is restored. This is due purely to a physical law concerning osmotic pressure of colloidal solutions, of which blood is one. If the colloidal elements of the blood are depleted so that the

intercirculatory osmotic pressure falls sufficiently low, then fluid leaves the vessels and enters the tissue spaces. The blood chloride level in such a case will not materially affect this colloidal balance, so that the restriction of salt intake does not afford the necessary relief.

Albuminuria may be very minimal in chronic nephritis and quite marked in broken cardiac compensation. While proteinuria is a prominent feature of acute nephritis, especially the nephrotic types, far advanced chronic nephritis may show a very low rate of albumin excretion.

Hypertension may be purely a matter of overstimulation of the adrenal cortex by the sympathetic nervous system. On the other hand, uremia has existed, though not commonly, without any evidence of even an increase in diastolic pressure.

There are so many compensatory phenomena present in the human organism that it behooves one not to be too dogmatic in his assertions on such a complex and heterogeneous clinical and histopathologic condition as chronic nephritis. The clinical pictures of this entity are indeed kaleidoscopic; the eternal change in the panorama before us seems to vary constantly. We must, therefore, view Bright's disease from a dynamic rather than a static angle. Our point of perspective must constantly change so that the evidence is weighed quantitatively rather than qualitatively.

Addis² emphasized the importance of examining urinary sediment from the quantitative angle, since

* Read before a Meeting of Pierce County Medical Society, Tacoma, Wash., Jan. 22, 1935.

1. Holmes, M. E.: Hypertension and Nephritis. New York State J. Med., 34:414-419, May 1, 1934.

2. Addis, T.: Number of Formed Elements in the Urinary Sediment of Normal Individuals. J. Clin. Investigation, 2:409-415, June, 1926.

he demonstrated that in normal young healthy individuals, casts, red and white blood cells in certain numbers were always found. Since minimal nephritis is common in all over the age of forty, a great deal of caution must be placed on the interpretation of findings in certain age groups.

Still, I feel that we are overlooking advanced renal disease as a prime factor in mortality which the statistic rates do not imply. The implication is natural enough; either it is due to our lack of dogmatism which is a virtue, or else to a lack of accurate clinical judgment. If I can make such an approach to the subject that I may clarify some confusing issues, perhaps we may formulate certain criteria which will prove diagnostically helpful.

Chronic Bright's disease, unlike the acute stage, is not subject to regeneration or subsidence; it is a very slow or rapid destruction of the number of secreting units which finally culminates in an inability of the kidneys to handle the basic nitrogenous excretion of the body. This would necessitate every case ending in uremic coma. But along the way, although the ultimate destiny of the patient would be just this, a great many other organs may fail to function or to carry the load because of the basic renal derangement, and death may intervene either by heart failure, cerebral accidents, anemia or a combination of such factors. Then, is it not unjustified to assign the cause of death to myocarditis, when the condition of the myocardium prior to the renal lesion was healthy, but suffered anoxemia from resultant anemia of renal origin and concomittant with extreme hypertension finally broke down? The myocardium merely proved to be more vulnerable to nitrogen retention than the arteries of the brain or the vital centers of the medulla.

It is common to find the cause of death in such a case assigned to the myocardium. If this is justified, then why not go a step further and assign the cause of death to pneumonia which usually closes the picture with cardiac decompensation? Perhaps my deviations from the subject of this paper are unwarranted, yet I feel it is justified as a defense of proper vital statistics, that we should pay particular attention to that which is put down on every death certificate and to ask ourselves honestly the question, "does this tell the true story?"

What, then, are the criteria for a diagnosis of chronic nephritis, and what prognostic index can we draw from them? Since we know that albuminuria, edema or hypertension are not reliable indices of a renal lesion, we must adopt some method that will prove more accurate. And in proposing

such methods let me make it clear that they cannot be applied to acute nephritis, nor will the tests which are reliable for this condition hold true with a chronic process.

With acute Bright's disease we are asking the question, "how many individual secreting units are involved?" In chronic Bright's disease we ask ourselves, "how many secreting units are still left?" There is a marked difference in these two questions which may not at first appear evident. Our concern in chronic nephritis, since it is progressive, involves our knowledge of whether and for how long enough secreting units will be undisturbed to support life. With an acute process we see a great many units involved with the prospects of regeneration of at least part of them. The tendency is to a retrogression. When, in the consideration of acute nephritis we come to ask ourselves the question as to how many are left, then we are no longer dealing with acute nephritis but the aspects of the chronic lesion. Repeated attacks or exacerbations of acute hemorrhagic or glomerular nephritis border on the chronic glomerular type and imperceptibly pass over into the considerations of chronic nephritis.

Our *clinical classification of chronic nephritis* resolves itself into two main categories. First, chronic glomerular nephritis which is a continuation usually of repeated acute exacerbations of the acute hemorrhagic type, with persistent and unrelenting destruction of glomerular units. Since these units are not susceptible to regeneration, it is only a question of how many are left and upon this evidence our prognostic index hinges. We do not in like manner consider tubular nephritis or recognize such an entity chronically since the tubules regenerate. A profound tubular destruction may occur with acute bichloride of mercury poisoning, but if the patient survives the acute attacks, there is little fear of a chronic nephritis killing him later on unless some later process selective to glomerular destruction plays a part.

Our second category deals with the vascular supply of the kidney. The term vascular nephritis may be used and should be differentiated from the arteriosclerotic type. Pathologically it is most difficult to differentiate the two at autopsy. The vascular type supposedly occurs as a result of arteriolar spasm which results in an anoxemia of the glomerular tuft with resultant fibrosis and increase in interstitial connective tissue. The glomeruli atrophy and finally disappear along with the tubular structures, actually being choked out by the interstitial replacement. This type is often referred to as inter-

stitial as differentiated from parenchymatous which is synonymous with glomerular nephritis.

The arteriosclerotic variety is only that manifestation in the kidney of the same process going on in all the vascular tissues of the body, a replacement by calcification of blood lumen primarily, but eventually bringing about the same anoxemia of the glomeruli, the same increase in interstitial tissue with a gradual choking out of the secreting units of the kidney. The end-result of the two appears very similar from a pathologic standpoint, but clinically they can usually be differentiated.

The vascular type, with its accompanying arteriolar spasm, exhibits a more rapid and oftentimes fulminating course and is far out of proportion to the evidences of arteriosclerosis found elsewhere in the body. To this category belong the cases of malignant hypertension which may go on to a fatal termination eighteen months from their onset. The hypertension is probably resultant to arteriolar spasm in the kidney as a compensatory force to furnish more blood. These cases are the ones for which decapsulation is sometimes recommended in an heroic effort to ward off or postpone the approaching fatal issue.

The arteriosclerotic type is slow, progressive and representative of a general senile process, purely an expression of age. Addis and Oliver³ have shown that "this slow fibrosis which finally leads to the cessation of function of a large part of the total kidney substance 'can take place' without at any time giving evidence in the urine that an actively destructive process is at work."

Clinically we differentiate the vascular from the glomerular by a study of the urinary sediment and a history of infections with acute exacerbations of an acute glomerular process. Scarlet fever does not explain the etiology of the great proportion of this group. Persons who give no other history than repeated upper respiratory infections or influenza show marked evidence of glomerular change. The common upper respiratory infections are becoming more and more important in the consideration of prophylaxis and, until we do something definite about these infections, we will do little to prevent the advent of chronic glomerular nephritis.

Considerable error often enters into the examination of the urinary sediment. Casts and red blood cells quickly disappear from the urine that is alkaline or of low specific gravity. This can be obviated by the examination of fresh specimens obtained

twelve hours after a dry diet and abstinence from fluids as advocated by Addis.⁴ This insures acidity and a higher specific gravity.

Chronic glomerular nephritis is differentiated from the vascular variety by the occurrence in the former of many red and white blood cells and casts of a coarsely granular type and albuminuria. If this latter is of marked degree, edema is usually present as already explained.

The *kidney function tests* of greatest value in chronic nephritis are the urea clearance test as devised by Van Slyke,⁵ and the concentration tests of Volhard or Mosenthal. In chronic glomerular nephritis these tests are subnormal, but are not usually affected early, since there are enough glomeruli left to carry on adequate function. When these tests show decided subnormal values, the prognosis is very poor and the patient seldom survives more than a year or two after the diagnosis is made.

In the chronic vascular type of nephritis edema and albuminuria are not a prominent part of the picture. If edema occurs at all, it comes late and is the result of cardiac decompensation. The kidney function tests, as with the chronic glomerular form, are reliable and present a poor prognosis when depressed. However, the ultimate outcome is seldom uremia, but more frequently the vascular system gives way and brings about the fatal termination.

In the glomerular form uremia more frequently closes the picture, since it is not primarily associated with hypertension.

The *retinoscopic sequelae* of chronic nephritis are not in any way associated with albuminuria and the term albuminuric retinitis should be discarded. It has been definitely shown that these changes are of two varieties and depend upon the hypertensive state. Floyd⁶ describes these two forms in much detail, the arteriosclerotic type and the malignant or neuroretinitic type. The arteriosclerotic form consists of irregular, tortuous, narrowed vessels with hemorrhages and opaque areas. Its presence is indicative of a general vascular disease rather than any renal lesion, per se. The malignant or neuroretinitic form is characterized by edema of the optic cup and retina with snow bank exudate and cotton-wool patches. This is of serious import. Fishberg and Oppenheimer's⁷ significant figures show that 90

4. Addis, T.: Clinical Classification of Bright's Disease. *J. A. M. A.*, 85:163-167, July 18, 1925.

5. Van Slyke, D. D.: Tests of Renal Function in Bright's Disease. *Med. Clin. North America*, 17:1179-1193, March, 1934.

6. Floyd, R.: Retinal Changes in Hypertension and in Renal Disease. *Arch. Ophth.*, 6:433-444, Sept., 1931.

7. Fishberg, A. M. and Oppenheimer, B. S.: Differentiation and Significance of Certain Ophthalmoscopic Pictures in Hypertensive Diseases. *Arch. Int. Med.*, 46:901-920, Dec., 1930.

3. Addis, T. and Oliver J.: The Renal Lesion in Bright's Disease. Paul B. Hoeber, Inc., New York, 1931.

per cent of these die within two years, with 70 per cent showing serious impairment of renal function. This is the usual picture found in malignant hypertension or vascular nephritis.

Hypertension is thought to be more frequently a preceding issue to serious renal impairment. The more reliable figures of Moore⁸ and of Bell and Clawson⁹ place hypertension associated with severe renal impairment as 10 per cent and 8 per cent. One implies from these figures that chronic nephritis is not often the forerunner of hypertension. Scott's¹⁰ autopsy reports on the causes of death found in hypertension places myocardial failure at 68 per cent, cerebral accident 22 per cent, and renal failure at 10 per cent. These figures conform well with the clinical evidence of Christian, Bell and Clawson. The pathologist is looking at the very terminal result when he views a kidney at autopsy and it is very difficult for him to tell whether the myocardial damage preceded or followed the renal damage. Perhaps they are both a result of the same process, the hypertension, but until the etiology of hypertension is known I cannot believe but that a fair proportion of these cases associated with nephritis are the direct result of the nephritic process.

There is more blood going through the kidney per minute than any other organ in the body save the heart, and anything that will decrease this vascular bed in the kidney will necessitate a compensatory rise in blood pressure. This rise may be transient as in the case of acute nephritis, but in a chronically contracted vascular bed the rise in blood pressure is a permanent and necessary result and nothing that can be given the patient will avail in lowering it. Why some men consider the lowering of the pressure as the thing of paramount importance is more than I can fathom. The pressure existing is most always found to be a necessity for the maintenance of that patient's nitrogen equilibrium. My contention is that there is definitely a hypertension, a direct sequela of chronic nephritis and not that the nephritis is necessarily a resultant of the hypertension. We justly recognize that the hypertension precedes in certain arteriosclerotic forms, but it does not explain the hypertension that is resultant to chronic vascular nephritis.

Anemia is characteristic of nephritis with nitrogenous retention and usually becomes a prominent feature of the chronic glomerular type. It may be-

come a reliable index of the degree of nitrogenous retention. It bears no relationship to edema. The cause of the anemia has been fairly well established by Brown and Roth¹¹ to be decreased function of the bone marrow. Neither hemolysis nor hydremia has been demonstrated as a causative factor. The depression of the hematopoietic function of the bone marrow is interpreted as evidence of a toxic process involved in chronic nephritis and conditions of almost complete aplasia are seen.

Scarlett¹² reports several cases of chronic glomerular nephritis with no evidence of cardiac hypertrophy, hypertension or retinitis, but with a distinct parallelism between the nitrogenous retention and the amount of anemia. He makes comment on the fact that anemia may be the only clinical manifestation of severe chronic glomerular nephritis.

TREATMENT

There is one outstanding fallacy in the treatment of chronic nephritis and that is protein restriction. This results in the development of anemia, lack of endurance and other evidences of disturbed nutrition. Whereas these symptoms were attributed to the nephritis, we now know that they often disappear under proper protein intake.

The fact that the body is continually replacing worn out tissue to the extent that it requires a minimum of 0.6 to 1.0 grams of protein per kilogram body weight daily for replacement is entirely lost sight of. This is the absolute minimum amount of protein required to maintain nitrogen equilibrium. Even with nitrogenous retention the accumulation of these waste products will not be slowed down by the restriction of protein beyond this minimum, because the nitrogen is coming from tissue katabolism, whereas the dietary protein goes into tissue anabolism.

McCann and Keutmann¹³ gave patients with active hemorrhagic nephritis diets containing 75 to 200 grams of protein a day without any adverse effects. The important indications for protein restriction are not albuminuria, hypertension or edema, but nitrogen retention. When this is lacking protein intake should not be curtailed, but probably increased. Especially is this true where considerable albumin is lost daily in the urine.

In albuminuria incident to pregnancy there is no

11. Brown, G. E. and Roth, G. M.: Anemia of Chronic Nephritis. *Arch. Int. Med.*, 30:817-840, Dec., 1922.
12. Scarlett, E. P.: Significance of High Grade Anemia in Chronic Nephritis. *Am. J. M. Sc.*, 178:215-222, Aug., 1929.

13. McCann, W. S. and Keutmann, E. H.: Effects of High Protein Diet upon Course of Chronic Glomerulonephritis. *Tr. A. Am. Physicians*, 47:80-88, 1932.

8. Moore, R. F.: Retinitis of Arteriosclerosis and its Relation to Renal Retinitis and to Cerebral Vascular Disease. *Quart. J. Med.*, 10:29-77, Oct., 1916 and Jan., 1917.
9. Bell, E. T. and Clawson, B. J.: Primary (Essential) Hypertension. *Arch. Path.*, 5:939-1002, June, 1928.

10. Scott, R. W.: Clinical Aspects of Arteriosclerosis. Study of 420 Cases. *Am. Heart J.*, 7:292-304, Feb., 1932.

14. Trumper, M. and Cantarow, A.: Biochemistry in Internal Medicine, 265-270. W. B. Saunders Co., Philadelphia, 1932.

justification for the restriction of protein sometimes instituted, unless renal impairment can be demonstrated.

There is no difference between the protein of red and white meat or between animal and vegetable protein as far as the kidney is concerned.

In chronic nephritis without edema the normal daily intake of fluids should be increased, since a great deal of urine is necessary to leach out the solids from the blood and maintain nitrogen equilibrium. Where edema is present, salt and water restriction is beneficial. Drugs are unfortunately of little value, but the acid diuretics sometimes render a little aid. With anuria hypertonic glucose will often initiate a response when given intravenously.

Treatment resolves itself into the maintenance of proper nutrition by adequate protein intake, and the guarding against deficiencies in vitamins and mineral balance.

SUMMARY

The emphasis of the cardinal points in the foregoing discussion of this subject are best brought out by the presentation of two cases.

Case 1. J. L. T., age 55, female. Occupation, housewife. Past history: Scarlet fever at age of 3, severe. Repeated attacks of tonsillitis in her younger years, tonsils never removed. Few colds or respiratory infections. Had several abscessed teeth, being present a long time before removal. Diabetes discovered fifteen years ago, mild and controlled almost entirely by diet alone.

History of present illness: Has had occasional attacks of blurring of vision, weakness and edema of ankles with a puffiness under the eyes. The visual disturbance brought her to the ophthalmologist who discovered a retinitis and she was referred to me for diagnosis.

Physical examination: Retinitis, recent hemorrhages, edema of discs, cotton-wool patches. Enlarged heart without murmurs and compensating. Liver enlarged two fingers below costal margin. Moderate arteriosclerosis and absence of pulsation in dorsal pedis arteries.

Laboratory examination: Urine: trace of sugar, specific gravity ranging between 1010 and 1016, albumin four plus. Many granular and waxy casts. Many red blood cells. Blood: red blood cells 3,950,000, hemoglobin 9.6 grams. Blood urea N., 28.0 mg., blood glucose 182 mg. (fasting), P. S. P. test 72 per cent in two hours.

Nov. 10, 1930. The patient was put on a relatively high carbohydrate-low fat ratio diet, believing that the retinitis was due to a combination of renal and glycogenolytic causes. Iron was given for the anemia. After several months the vision improved some, due to absorption of the recent retinal hemorrhages. No specimen of urine was ever examined without finding a heavy cloud of albumin, many casts and always the persistence of a great many red blood cells. The blood sugar was controlled with the supplemental use of insulin and was soon discarded as unnecessary on the new regime. The blood pressure varied between 138-150 systolic and 78-82 diastolic.

Dec. 30, 1932. Fresh hemorrhages in the left eye with marked disturbance of vision and beginning disintegration of the lens. The blood pressure was 188-70. The urine still showed the persistent hematuria.

Jan. 6, 1933. Feeling very badly. Dyspneic and weakness

marked. Blood pressure 198-80. Heart compensating. In spite of every effort to build up the blood count it continued a downward trend. Red blood cells, 2,550,000; hemoglobin, 6.4 grams.

Blood urea nitrogen 33 mg., blood creatinine 2.2 mg., blood cholesterol 196 mg., urea clearance test 21 per cent.

May 10, 1934. For the past several weeks she has showed a puffiness around the eyes, marked orthopnea, almost total blindness. Blood pressure 230-70. Red blood cells 1,800,000, hemoglobin 4.8 grams, urea clearance test 14 per cent, 450 cc. of citrated blood was transfused without effect.

Died in uremic coma in December.

Diagnosis: Chronic glomerular nephritis, uremia.

Case 2. F. P., age 22, male. Occupation, student.

Past history: Has always enjoyed good health. Never had any serious illness. No history of colds or streptococcal infections of any kind.

History of present illness: He was perfectly well until three weeks ago, when he noticed weakness and failing vision. Dyspnea on exertion has come on. Stopped school and went home to recuperate, but became progressively worse, until now (April 11, 1928). (1) Blindness, can only discern objects faintly; (2) dyspnea and orthopnea becoming progressively worse; (3) epistaxis, repeated attacks the past five days; (4) headaches, severe and persistent frontal and occipital; (5) polyuria and nocturia until now acute retention.

Physical examination: (1) Marked anemia. Patient is a lemon yellow color. Red blood cells 1,800,000, hemoglobin 5.8 grams. (2) Retinitis: papilledema, cotton-wool patches and hemorrhagic areas. (3) Enlarged and tumultuous heart, hemic murmurs. (4) Blood pressure 280-145. (5) Bladder retention; catheterized and 1500 cc. obtained.

Laboratory findings: Urine: specific gravity ranging between 1002 and 1006, trace of albumin, numerous pus cells, rare red blood cell. Blood: red blood cells 1,800,000, hemoglobin 5.8 grams, white blood cells 10,000. Blood urea N. 36.8 mg., blood creatinine 9.0 mg.

Intravenous glucose, whole blood transfusion, retention catheter used in the treatment the first twelve days in the hospital.

Twelve days after admittance to the hospital the patient was discharged slightly improved. He could now recognize people, was only slightly dyspneic. The blood pressure had dropped to 165-116. The blood count had increased to 3,250,000 red blood cells, hemoglobin 6.5 grams. The blood creatinine was still rising, 12.5 mg. Prognosis fatal.

The patient died five months later in uremic coma with a total duration of illness being six and one-half months.

Diagnosis: Chronic vascular nephritis (malignant hypertension), uremia.

ROLE OF SODIUM IN ADRENAL INSUFFICIENCY. Robert F. Loeb, Dana W. Atchley and Jules Stahl, New York (*Journal A. M. A.*, June 15, 1935), believe that if adrenal insufficiency in man is not relieved by salt administration, it will not be relieved by commercial cortical extracts given in the usual dosage. It is distinctly hopeful, however, for the future of this type of therapy that the commercial extract is entirely adequate for the healthy survival of the adrenalectomized dog. The studies that they have presented indicate that there is a definite relationship between sodium metabolism and the active principle of the adrenal cortex. When cortical insufficiency develops, the disturbances in sodium metabolism manifest themselves in a number of ways that have significant diagnostic and therapeutic implications. The sodium concentration of the blood is decreased because of an increased rate of sodium excretion. The diagnostic change in the sodium level becomes more apparent and specific when salt is withdrawn from the diet.

URETERAL TRANSPLANTATION

ITS PRESENT STATUS *

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The group of cases which call for ureteral transplantation are among the most pitiable the urologist is called to see, and it is encouraging that considerable progress has recently been made in perfecting the operative technic. Practically all of the early cases upon which this procedure was carried out were of exstrophy of the bladder. This condition is one of the most unfortunate of the congenital anomalies. Not only does the child smell of urine continually, but there is pain from the raw and vascular mass as it is exposed to the air and dressings. The suffering of such patients was probably all that justified such a formidable procedure as ureteral transplantation used to represent. To be sure the operation is still to be considered one of the major procedures, but the immediate mortality at least has been so successfully cut down that it is now applicable in a number of less extreme conditions.

Among the more common of these is bladder malignancy. Total removal of the entire bladder, prostate gland and seminal vesicles in one block can now be accomplished following transplantation, and in two groups of cases appears to be the method of choice,¹ namely, certain patients with early removable cancer and cases of incurable cancer with a life expectancy of more than six months. Although the widespread and increasingly intelligent use of radium in bladder carcinoma has markedly improved our results, these cases are still disappointing in many instances, and total cystectomy represents one mode of treatment which in a small number of carefully chosen cases can be expected to give us still better results.

The technic of bilateral implantation in the rectum and total cystectomy, all done in one stage, has been carefully worked out. The advantages of carrying out this double or triple procedure all at one operation are obvious. First, the cancerous growth in the bladder is obliterated at once, and its progress is prevented during the period of time which would have to elapse between the two stages of the operation; second, it eliminates having to approach a previously operated area with the accompanying difficulty of obtaining satisfactory exposure, and lessened chances of isolating and ligat-

ing the branches of the internal iliac vessels which form the main blood supply to the bladder. The cystectomy is much more rapidly carried out. A third advantage of the operation, as pointed out by Coffey, is the possibility of establishing an entirely extraperitoneal drainage route. At this time it would only seem feasible to use the general principles embodied in Coffey's second or so-called tube technic in carrying out this one-stage method.

Still another indication for transplantation of the ureters is found in certain cases of extensive bladder tuberculosis, where following removal of a tuberculous kidney, and the opposite kidney remains free or nearly free of the disease, the bladder irritation and the continual distention and emptying of the organ do not permit of sufficient rest to allow healing. When the urinary stream is diverted, healing of the bladder lesions can usually be accomplished.

A fourth group of cases, where bilateral transplantation would seem justified, are the incurable vesicovaginal fistulae. Many such patients have had repeated attempts made at fistula repair, and are unwilling to face life if they cannot be given relief. This is obtained by diverting the urinary stream. In addition to the above, Coffey mentioned another group of cases seen from time to time by the urologist, which might perhaps be included in the list, incurable perineal fistulae. To this might be added other occasional cases which present varying problems.

That transplantation is not a procedure which is to be entered into lightly must of course be evident. Recently Kirwin,² in reviewing his own experimental studies and that of some other workers, has come to a rather discouraging conclusion as to the final results of this operation. Autopsies of experimental animals who died or were killed months after transplantation had been done, in cases in which he had supposed a perfect result had been obtained, showed uniformly dilatation of the ureters, pyonephrosis and at times stricture formation. He believes that these effects are the end-results of a process set in action at the time of transplantation, whereby the nerve fibers entering into the networks supplying the muscle bundles in the ureteral walls are injured. Although these fibers heal, the function of the muscles they supply never return fully to normal, and the traumatized ureter loses its normal physiologic activity. These conclusions are in contrast with the findings of some writers. Although it may be hoped Kirwin's work will discourage the use of the operation by the overzealous

* Read before a Meeting of Whatcom County Medical Society, Bellingham, Wash., Nov. 5, 1934.

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2. Kirwin, T. J.: Clinical Value of Experimental Ureteral Implantation. *Am. J. Surg.*, 23:14-29, Jan., 1934.

enthusiast, nevertheless the procedure will continue to hold its place in treating many otherwise discouraging and hopeless conditions.

The gradual evolution of a surgical procedure for use in transplantation is interesting to review, for one is impressed with the fact that, like most other surgical problems, many men have taken part in its development. Although Roux³ is credited with having first suggested the possibility of circuiting the urine into the rectum, the first successful operation was apparently performed by Simon⁴ in 1851. He passed a thread through from the ureter into the rectum, and by this means produced pressure necrosis and eventually a ureterorectal fistula.

The first operation to be carried out along lines similar to those we use today seems to have been done in 1878 by Smith.⁵ The left ureter was carried into the colon through a small incision, and a fine catgut suture was passed to the bowel wall, holding the anastomosis in place. The urine passed with the feces for six days, then a leak occurred at the site of the anastomosis, and drainage appeared through the lumbar incision. Healing took place, however, and after a month the child was up and about the ward. The patient died a year later during attempted repetition of the operation on the opposite side.

In 1894 Maydl⁶ described a plan which marked a great advance. He felt that, if the true ureteral orifices could be preserved and transplanted with the ureters into the rectum, it would probably prevent reflux of the intestinal contents. He, therefore, dissected free the entire bladder trigone with the attached ureters, carrying it through an incision in the rectum, and suturing it in place. Of ten such cases so operated on he reported only one fatality, the other nine recovering and showing no evidence of renal disturbance. This plan together with a modification of it by Moynihan gained considerable popularity. In 1894 the Italian, Boari, devised and used a method whereby an anastomotic button was used to unite the left ureter and the descending colon.

In the United States Fowler⁷ in 1896 incised the serous and muscular layers of the rectum, leaving a diamond-shaped area of mucous membrane. With

this he made a flap designed to protect the ureteral opening. Martin⁸ first stated a principle which we still hold most essential for this operation today. He held that the ureters must be buried longitudinally, so that during the act of defecation the fecal mass will close the caliber of the ureters by pressure on the mucous membrane. He also pointed out that pressure is exerted from above downward in the direction of the onward flow of urine, thereby emptying the ureter by a milking process. His technic consisted of surrounding the ureter by muscle, leaving a trough through which the tube passed for a short distance before entering the bowel lumen. However, the presence of a muscular layer between the ureter and the mucosa of the bowel cut down the pressure to some extent so that he was unable to obtain a completely satisfactory valve action. Martin is also said to have been the first to point out the value of using ureteral catheters at the time of transplantation to protect the wounds in the rectal wall.

It was Peters⁹ who formulated the greater part of the operation which we use today. The worth of any procedure must be judged by the clinical results obtained through its use, and Peters' operation, together with Coffey's carefully worked out modifications, even in the hands of some less able surgeons have been most gratifying. Peters did his anastomosis extraperitoneally. He stressed the importance of the site of implantation and was able to obtain a papilla where each ureter entered the rectal lumen. He used catheters or tubes extending from the ureters out through the rectum and anus. Various other workers, as Kirwin has pointed out, added other refinements.

The principles underlying the technic perfected by Coffey have as one of their basic points the ideal sought by Martin, namely, the delivery of the urine into the bowel through a valve which will allow ingress of the urine during periods of low intrarectal pressure, but which will not permit back flow as the pressure within the rectum rises above that in the ureters. In 1908, while attempting to transplant the common bile duct in dogs into the jejunum, Coffey¹⁰ found that, whenever a direct implantation through a simple puncture wound was made, a marked dilatation of the common duct in-

3. Roux, J.: Extrophie de la Vessie; antoplastie; insuccès; établissement définitif, d'un Canal cutané propre à maintenir en place un réservoir en caoutchouc vulcanisé. *Union méd.*, 7:449-453, 1853.

4. Simon, J.: Ectropia Vesical; Operation for Directing Orifices of Ureters into Rectum; Temporary Success; Autopsy. *Lancet*, 2:568-570, 1852.

5. Unsuccessful Attempt to Treat Extroversion of Bladder by New Operation. *St. Bartholomew's Hosp. Repts.*, 15:29, 1879.

6. Maydl, K.: Ueber die Radikaltherapie der Blasenektropie. *Wien. med. Wchnschr.*, 44:25, 1894; 46:28, 1896.

7. Fowler, G. R.: Implantation of Ureters into Rectum in Extrophy of Bladder, with Description of New Method of Operation. *Am. J. M. Sc.*, 115:270-276, 1898.

8. Martin, F. H.: Implantation of Ureters in Rectum; a Method Having for its Object Making Subsequent Infection of Ureters and Kidneys Impossible. *J. A. M. A.*, 32:159-161, Jan. 28, 1899.

9. Peters, G. A.: Transplantation of Ureters into Rectum by an Extraperitoneal Method for Extrophy of Bladder. *Brit. M. J.*, 1:1538-1540, June 22, 1901. Fowler, G. R.: *Treatise on Surgery*. Vol. II, p. 313. W. B. Saunders Co., Philadelphia, 1907.

10. Coffey, R. C.: Transplantation of Ureters into Large Intestine in Absence of Functionating Urinary Bladder. *Surg., Gynec. & Obst.*, 32:383-391, Mar., 1921.

variably occurred, presumably due to the greater intraintestinal pressure being transmitted up through the duct. Dissections convinced him that the normal duct passed longitudinally just under the mucosa for a short distance before entering the lumen of the duodenum. On repeating his experiments, using a short submucous bed for the duct before it perforated the jejunal mucosa, no dilatation resulted. He recognized the importance of this finding, and at once determined to use this principle with the rectal implantation of ureters. Subsequent experimental work convinced him of the essentiality of this point, and since its adoption a great many cases have been successfully operated upon in this way by many surgeons.

Recently some question has been raised as to the necessity for this submucous implantation by Vermooten¹¹ and his coworkers who have shown experimental evidence to indicate that direct implantation without making use of the submucous route gives just as many cases free from kidney damage as does the method worked out by Coffey. However, they have not reported any experience with humans, and until there is more conclusive evidence to the contrary, it would seem wise to make use of the Coffey principle.

After he first outlined a technic, and demonstrated his results in dogs in 1910, he did not attempt the operation on a human for several years. Meanwhile C. H. Mayo,¹¹ making use of Coffey's ideas, and adding a number of modifications of his own, was working out the problem clinically, and his case reports have formed one of the most encouraging and successful groups of cases that have been reported. The technic as it is used today is, therefore, a composite of the ideas of many workers.

Because of attendant edema at the site of the implantation, a bilateral operation by this method must always be done in two stages, and the right ureter should be the first attacked. A period of at least twelve days is usually allowed before the second stage is carried out. The general plan of this method which is still frequently made use of, has been meticulously described.^{12, 13} Drainage is provided with gauze and in Coffey's cases he used his quarantine drain, thus providing protection for the intestines, and allowing ample drainage. Judd sug-

gested the modification of approaching the left ureter extraperitoneally. In the aftertreatment the use of a large rectal tube extending well up beyond the ureteral openings is essential. Where both ureters are transplanted the greater mortality seems always to follow the first operation. Where total removal of the bladder and adnexa is done, this is usually combined with the second stage. Various other workers, notably Lower and Hinman, have added minor refinements.

Although the method just described has been successful in many cases, there has always been a considerable element of danger, and as already mentioned it precludes the possibility of transplanting both ureters at the same operation. Thus, the use of ureteral retention catheters, which has allowed the combining of the two steps into one operation, has marked an advance. It would still seem preferable at times even with this operation to transplant only one ureter at a time. Although the catheter idea had already been used by others, it was Coffey who perfected and popularized the method. The advantage of preserving uninterrupted kidney function, while both ureters are being transplanted at a single operation, is evident.

A review of the cases reported in the literature shows that infection has been the cause of nearly all the deaths, and Coffey felt that this "tube method" by temporarily closing off the space between the catheters and the ends of the ureters by ligatures, and by using retroperitoneal drainage through his quarantine drain, which can be done where the operation is performed all in one step, approached the ideal of safety from infection. This obviating the necessity of transperitoneal drainage has appealed to surgeons generally. The complete plan of this technic has been carefully outlined by others and does not require repetition here. In connection with the aftercare it has been suggested that avoidance of ascending infection can be aided by keeping the distal tips of the ureteral catheters under the surface of an antiseptic solution, and by even lavaging the kidney pelves at intervals. Coffey also suggested the use of an acidifying agent by mouth to prevent blockage of the catheters with alkaline deposits in the urine.

Although Simon joined the ureter and rectum by using a tight ligature which gave pressure necrosis and produced a permanent fistula, this idea had not been employed to any extent in this operation until Coffey outlined a technic making use of it. This method resembles his original operation except that, in place of making the incision through the rectal

11. Mayo, C. H. and Walters, W.: Transplantation of Ureters into Rectum; End Results of Exstrophy of Bladder. *J. A. M. A.*, 82:624-626, Feb. 23, 1924.

12. Coffey, R. C.: Transplantation of Ureters into Large Intestine. *Surg. Gynec. & Obst.*, 47:593-621, Nov., 1928.

13. Coffey, R. C.: Bilateral Submucous Transplantation of Ureters into Large Intestine by Tube Technic; Clinical Reports of 20 cases. *J. A. M. A.*, 93:1529-1538, Nov. 16, 1929.

mucosa and carrying the end of the ureter through it, he has placed a fine linen or silk thread, transfixing the ureter and picking up the full thickness of a fold of mucous membrane. It is essential that this suture be accurately placed. With this method the urine appears in the intestine in from twenty-four to forty-eight hours. In experimental dogs where postmortems have been done there has not been any appreciable amount of infection of the rectal wounds using this procedure, whereas in other methods a certain amount of inflammatory reaction is always demonstrable. This operation must be done in two stages, only one transplantation being done at a time, and one must, of course, demonstrate a satisfactory function in that kidney whose ureter is not being transplanted. Experimentally Coffey found only a temporary effect on the kidneys with this sudden temporary obstruction to the urinary flow.

Given a patient in very good general condition with normal kidney function on both sides, the method would seem justifiable. In a larger number of cases it will undoubtedly be wiser to do a preliminary nephrostomy, thus giving temporary urine drainage, and avoiding further renal damage. This method has been urged by Hinman¹⁴ for use in the less favorable cases, and is especially necessary where there is only a single kidney remaining. Even when combined with the catheter method, it would seem to add a great factor of safety for the less favorable cases. As Hinman points out, a nephrostomy opening can also be made use of in lavaging the kidney pelves at will. Following removal of the catheters in the tube method, all one's bridges are burned behind him, he points out, as catheterization of a ureter through the rectum can scarcely ever be justifiable.

That ureteral transplantation has already proven a boon to many sufferers is evident. Walters¹⁵ has recently reported two women, both of whom had bilateral transplantations for bladder exstrophy who have remained in excellent health for fifteen and nineteen years respectively, both of whom have since had normal pregnancies and were normally delivered of their babies. Patients who have had this operation retain urine in the rectum for from two to four hours during the day and from three to five hours at night. There is usually remarkably little evidence of renal infection. In Walters' series only 21 per cent of them showed clinical evidence of such infection, and this consisted usually only of mild attacks of fever. Of nine patients who died one

to seven years after anastomosis, only one showed evidence of renal infection as a cause of death. Though the rectum may not ultimately be considered the best place for a urinary reservoir, results seem to indicate that for the present, at least, we may with comparative impunity carry out transplantation to this organ.

TRANSPLANTATION OF URETER INTO LOWER LARGE INTESTINE

DELAYED FUNCTION UNTIL HEALING OCCURS

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By presenting the natural valve in ureterointestinal anastomosis Coffey made the lower intestinal tract a common chamber, through which both the intestinal and urinary canals may discharge.¹ It should be noted that this is not the formation of a cloaca in homo sapiens. The cloaca is a common reservoir in birds, reptiles, amphibians and some fishes, into which all three, the intestinal, urinary and genital canals discharge. In constructing this mucous membrane valve while transplanting the ureter into the lower large intestine, one copies the manner by which the normal common bile duct empties into the intestine and the normal ureter into the bladder. This valve takes care of the differences of pressure in the two systems and prevents regurgitation into the ureter from the intestinal tract, yet permits deliverance of urine into the rectum in a satisfactory way.

Infection of the wound in the intestinal wall and subsequent extension into the retroperitoneal space and otherwise, together with ascending infection of the kidneys, have always been the chief obstacles to a satisfactory temporary and permanent end-result. Anyone who has been associated with these cases with sufficient interest to follow the postoperative course, especially by rectal and proctoscopic

14. Hinman, F.: Indication of Nephrostomy Preliminary to Ureterorectoneostomy. *J. A. M. A.*, 86:921-926, March 27, 1926.

15. Walters, W.: Transplantation of Ureters to Rectosigmoid and Cystectomy for Exstrophy of Bladder. *Am. J. Surg.*, 15:15-22, Jan., 1932.

1. Coffey, R. C.: (a) Pancreato-Enterostomy and Pancreatectomy. *Ann. Surg.*, 50:1238-1264, Dec., 1909. (b) Submucous or Physiological Implantation of Ureter into Large Intestine. *Urol. & Cutan. Rev.*, 23:435-446, 1919. (c) Transplantation of Ureters into Large Intestine in Absence of Functioning Urinary Bladder. *Surg., Gynec. & Obst.*, 32:383-391, May, 1921.

2. Coffey, R. C.: (a) Technique for Simultaneous Implantation of Right and Left Ureters into Pelvic Colon which does not Obstruct Ureters or Disturb Kidney Function. *Northwest Med.*, 24:211-215, May, 1925. (b) Completed Aseptic Technique for Implantation of Ureter into Large Bowel. *Surg., Gynec. & Obst.*, 45:816-819, Dec., 1927. (c) Transplantation of Ureters into Large Bowel; Elimination of Infection as Element of Danger. *Northwest Med.*, 27:303-306, June, 1928. (d) Transplantation of Ureters into Large Intestine. *Surg., Gynec. & Obst.*, 47:593-621, Nov., 1928. (e) Difficulties and Pitfalls of Transplantation of Ureters into Large Bowel. Editorial. *Am. J. Surg.*, 6:384-386, Mar., 1929. (f) Bilateral Submucous Transplantation of Ureters into Large Intestine by Tube Technique; Clinical Report of 20 Cases. 93:1529-1538, Nov. 16, 1929.

3. Stater, W. J.: (a) Inlying Ureteral Catheter. *Northwest Med.*, 24:337-338, July, 1925. (b) Transplantation of Ureters into Rectum or Bladder; Suggestion for Improvement in Technic. *Northwest Med.*, 25:41, Jan., 1926.

examinations, has consistently noticed a marked reaction around the wound and frequent extensions both local and at a distance, with frequent involvement of the kidney.

Ascending infection of the kidneys usually occurs otherwise than through the lumen of the ureters, as shown by its occurrence when the catheters are tied into the ureters.^{2,3} This infection probably usually travels through the lymphatics of the mucosa, submucosa and external coats of the ureter. These lymphatics connect with those of the kidneys and bladder. Sometimes infection spreads by direct continuity but is not usually disseminated by the blood vessels of the ureter.

But Coffey, Mayo et al. have failed to take into account the outstanding factor leading to the pitfalls of the operation.⁴ To prevent infection in the intestinal wound, ascending infection of the kidneys and complications which result from infection of the wound, operation is performed and it is allowed to heal before function is established.

In order to secure complete healing after transplantation of the ureters and before function is established, one must first perform ureteroureteral anastomosis in the middle thirds of the ureters, joining the right and left ureters so that the urine from both kidneys may be delivered into the bladder by way of the right ureter distal to the anastomosis.

The left ureter is transplanted into the lower large intestine following ureteroureteral anastomosis. Note the outstanding differences between my method and the Coffey technic.⁵ The ureter is transplanted submucously but an opening is not made into the large intestine and the distal end of the proximal ureteral segment is closed. An opening for both the bowel and ureter is provided for by my delayed method at the time of the operation but they are not formed until several days later.

What are the technical steps in performing an aseptic transplantation of the ureter into the lower large intestine, providing for delayed function at the same time? The ureter is transplanted submucously. After the incision has been made into the

wall of the bowel all layers of the intestinal wall are incised except the mucous membrane which pouts out. The gadget or mechanical device invented by me to secure a delayed opening into the bowel is introduced into the prepared rectum. The mechanical affair may be made out of hard wood or metal. It is two centimeters in length and three or four millimeters in width. There is a groove one millimeter in depth located four millimeters from one end and an opening through the shaft two millimeters from the opposite end. The mucous membrane of the rectum is evaginated over the grooved end of the apparatus and carefully ligated so that this portion of the rectum will slough off after a time. A heavy silk or linen ligature has been threaded through the opposite end to control removal of the gadget. Both the rectal and ureteral gadgets are solid cylindrical instruments.

Mechanical apparatus of a similar nature is also used in the ureter. The ureteral gadget is only as long as it is wide, about four millimeters. There is a groove near one end and an opening through the shaft nearer the opposite end. The gadget is tied into the distal end of the proximal ureteral segment just after the ureter is divided near the bladder. After the mucous membrane of the bowel has been evaginated over its apparatus and the ligature rests snugly in the groove provided for it, the ends of the ligature are left long and one end is threaded through the opening in the shaft of the ureteral gadget when the two ends are tied together. This brings the end of the ureter against the future opening into the bowel, and makes it possible and necessary to remove both mechanical affairs at the same time, the ureteral gadget passing through the opening in the bowel after the mucous membrane has sloughed away. The outer coats of the ureter may be incised before the ligature is tied around the ureteral gadget so that the openings in both organs will be formed at about the same time.

The urine from both kidneys may be delivered into the large bowel only after the mucosae of bowel and ureter have sloughed away over the mechanical apparatus. Before this occurs the lymphatics are blocked and the wound is at least partly, possibly entirely, healed. To change the course of the urine entirely, distal to the ureteroureteral anastomosis, from the right to the left ureter, the right ureter must be blocked or interrupted. The right ureter is tied off and divided just distal to the anastomosis, if one wishes to open the abdomen again and this may be necessary to remove the bladder or it may be possible by cystoscopic methods to obliterate it in the same area.

4. Coffey, R. C.: (a) Experimental Transplantation of Ureter in Which Transfixion Suture is Used to Complete Anastomosis. *Northwest Med.*, 29:128-129, Mar., 1930. (b) Production of Aseptic Ureteroenterostomy by Suture Transfixing Ureteral Wall and Intestinal Mucosa. *J. A. M. A.*, 94:1748-1750, May 31, 1930. (c) Radical Treatment of Cancer of Bladder. *West. J. Surg.*, 38:567-583, Oct., 1930. (d) Transplantation of Ureters, for Cancer of Bladder with Cystectomy. *Ann Surg.*, 91:908-923, June, 1930. (e) Cystectomy with Bilateral Transplantation of Ureters in One Operation. *Northwest Med.*, 29:443-450, Oct., 1930.

5. Coffey, R. C.: (a) Transplantation of Ureters into Large Intestine by Submucous Implantation; Clinical Application of Technic 3. *J. A. M. A.*, 99:1320-1323, Oct. 15, 1932. (b) Transplantation of Ureters into Large Intestine; Submucous Implantation Method. *Brit. J. Urol.*, 3:353-428, Dec., 1931. (c) Transplantation of Ureters. *Editorial, Surg., Gynec. & Obst.*, 53:841-843, Dec., 1931.

APPLICABILITY OF CERTAIN SURGICAL PROCEDURES FOR DUODENAL AND GASTRIC ULCER*

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The question of medical versus surgical treatment of peptic ulcer has been for many years past and still continues to be a most important subject, and to date remains entirely unsettled even among many surgeons and internists particularly interested in the management of ulcer of the duodenum and the stomach. The Fellowship of Medicine, London, within the year arranged a debate on the motion that, "in the absence of complications, surgical intervention is unnecessary in cases of gastric and duodenal ulcer." After much discussion a vote was cast, the result of which was 70 for and 73 against the motion. Even though the motion was defeated by a narrow margin, the vote really portrayed an evenly divided opinion.

To quote from the discussion, Hurst¹ stated that, following Moynihan's assertion ten years ago "that a gastric ulcer large enough to produce a crater demonstrable by roentgen ray could be cured only by operation," he saw the largest gastric ulcer in his experience and treated it by medical therapy with a complete disappearance of symptoms in three months. He emphasized particularly that to be effective medical treatment must be thorough and prolonged. On the other hand, Hutchinson² was astonished at Hurst's claims that every uncomplicated gastric ulcer would heal under medical management. He stated, furthermore, that after five years the results following medical treatment remained satisfactory in about only one-half of the cases, and that patients who had been operated upon could live a freer life without the rigorous restrictions of medical treatment.

Patterson³ made the statement that gastric ulcers could be healed under medical treatment, but he doubted whether this was also true in cases of well established duodenal ulcer. He opposed the motion because he said a large ulcer would not heal under medical treatment and that a duodenal ulcer seldom or never healed. Carr⁴ said that sooner or later all, or almost all, cases of gastric ulcer, and certainly all cases of duodenal ulcer relapsed, and that a second relapse should mean operation. Moynihan

stressed the inefficiency of medical treatment as generally carried out. He was strongly in favor of medical measures and said that he rarely liked to operate until thorough nonoperative treatment had been carried out. He added that, because of the risk of perforation or hemorrhage, medical treatment was more dangerous than surgical operation.

That wide divergence of opinion exists pertaining to indications for surgical treatment of gastric and duodenal ulcer is apparent. The complication of acute perforation of an ulcer is recognized by all as an absolute indication for surgical intervention. High grade pyloric obstruction incident to chronicity and cicatricial pyloric stenosis rarely responds permanently to medical treatment, and is too often procrastinated with by enthusiastic exponents of medical management. It was in this particular complication that the surgical treatment of duodenal ulcer had its inception and it was also the particular complication for which gastroenterostomy was and continues to be most advantageously and successfully employed. The complication of repeated hemorrhage from an ulcer in the duodenum or stomach is one which occasions much concern and question regarding surgical intervention. Hemorrhage from such lesions occurs sufficiently often to merit well planned methods of management. The slowly developing anemia from continued loss of blood over a period of weeks usually provides no great emergency, but the large, massive, shock-producing hemorrhage at times provides a situation as acute as the perforation of an ulcer.

It has frequently been stated that acute, massive hemorrhage is rarely fatal, and that the effects of such loss of blood may be successfully compensated by transfusion. Some time ago Allen and Benedict⁵ reviewed the subject of hemorrhage in 1804 cases of duodenal ulcer treated at the Massachusetts General Hospital. There was a history of gross bleeding, or where bleeding occurred in amounts recognizable microscopically, in 34 per cent of the cases. Acute massive hemorrhage, producing prostration and shock, occurred in 138 cases, or 22 per cent of those in which bleeding was observed. The hemorrhage was fatal in twelve cases and eight others were operated upon without success. The mortality rate in the cases of massive hemorrhage was 14.5 per cent. Most of us have observed massive fatal hemorrhage from gastric and duodenal ulcer, and have had brought to our minds the question of how often and how much shall a patient bleed before surgical

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1. Hurst, A. F.: Debate on Medical versus Surgical Treatment of Peptic Ulcer. *J. A. M. A.*, 103:54, July 7, 1934.

2. Hutchinson, R.: *Idem*.

3. Patterson, H.: *Idem*.

4. Carr, W.: *Idem*.

5. Allen, A. W. and Benedict, E. B.: Acute Massive Hemorrhage from Duodenal Ulcer. *Ann. Surg.*, 98:736-749, Oct., 1933.

intervention is instituted. I have previously stated elsewhere that to my mind repeated small hemorrhage is often enough, and one or more massive hemorrhages is too much; and either type of hemorrhage is sufficient and just indication for direct surgical attack upon a known or suspected bleeding lesion, after sufficient rehabilitation of the patient to insure relative safety for a surgical procedure.

It is generally agreed that the uncomplicated duodenal and gastric ulcers are those in which neither acute perforation, pyloric obstruction, gastric retention nor bleeding has occurred, and these comprise the group in which so much question exists whether the treatment shall be medical and continue to be such until one of the above discussed complications occur, or whether it shall be surgical. Experience has shown that under certain circumstances rather definite indications exist which may be designated as relative indications for surgical treatment of peptic ulcer. Even the most enthusiastic exponents of medical treatment have experienced failure not only to cure but to provide symptomatic relief by even most diligent and thorough medical management in all uncomplicated cases of ulcer. There is a relatively large group of ulcers where definite chronicity has been established over a period of years, in which medical management has not been particularly successful by virtue of impossible or incomplete cooperation of the patient, or because of other influences over which the physician may have had little control.

Not all people in whom ulcer has occurred are so situated, economically or occupationally, that they may indulge their own or the physician's preference for medical treatment. This group comprises many cases in which surgical treatment may or may not be instituted, and the decision is dependent upon many factors, among which the degree of disability is perhaps the most important. The attendant risk of operation and the surgical skill available to the patient are added factors which must be reckoned with, for the mortality rate of medical treatment of benign, uncomplicated ulcer is nil. It is well known that the mortality rate of conservative surgical procedures for uncomplicated duodenal and gastric ulcer is likewise extremely low in the hands of the experienced, skillful surgeon. Then, too, the problem of postoperative recurrence is one which must receive due consideration. These general principles are applicable whether the lesion is on the duodenal or gastric side of the pylorus.

One's experience and observation may determine the amount of enthusiasm that may be engendered

regarding more or less definite indications for the excision of all or most gastric ulcers on the basis of the relationship of gastric carcinoma to gastric ulcer. I do not wish to infer that this relationship is particularly important in terms of carcinoma developing upon a chronic gastric ulcer. There is, however, some apparent recent concurrence of opinion that malignant degeneration does occur in a small percentage of cases. Newcomb⁶ has reported an incidence of nearly 4 per cent malignant degeneration in gastric ulcer, and Gömöri⁷ found cancer secondary to ulcer in 6.6 per cent of the cases of gastric ulcer and gastric carcinoma studied.

Of first importance in the relationship of ulcer to carcinoma is the clinical differential diagnosis. The differentiation between a benign gastric ulcer and an early carcinoma, as determined by roentgenologic examination, is not always easy nor entirely accurate. There are many lesions of the stomach in which only an exploration and microscopic study of the lesion will determine the accurate diagnosis. Certainly, when any question exists as to the true nature of an intrinsic gastric lesion, the proper course to pursue becomes quite clear. When one carries in mind that 22 per cent of all deaths from cancer are due to carcinoma of the stomach the relationship of gastric ulcer to carcinoma in terms of differential diagnostic difficulties assumes much importance.

GASTROENTEROSTOMY

Clinical and experimental investigation of the etiology of ulcer, reactivation and recurrence has been productive of evidence that many factors are concerned. The underlying principle of practically all methods of medical treatment of ulcer has been the control of gastric secretion and the neutralization of gastric acidity, and all methods have failed in some instances to control these. Most surgical procedures, except when employed for the emergency of acute perforation, have been likewise directed toward the neutralization or the reduction of gastric acidity, with or without excision of the lesion. That postoperative reactivation or recurrence is occasionally encountered subsequent to any of the various conservative surgical procedures, including even partial gastrectomy, attests the difficulties of controlling the gastric secretion and the gastric acidity in all cases.

Omitting historical discussion, the operation of gastroenterostomy had its inception with the clin-

6. Newcomb, W. D.: Relationship between Peptic Ulceration and Gastric Carcinoma. *Brit. J. Surg.*, 20:279-308, Oct., 1932.

7. Gömöri, G.: Carcinoma Arising from Chronic Gastric Ulcer. *Surg., Gynec. & Obst.*, 57:439-450, Oct., 1933.

ical recognition of pyloric obstruction and was first utilized to short circuit or circumvent obstructing lesions of the pylorus. The procedure proved particularly adaptable as a curative measure in the cases of benign cicatricial stenosis produced by duodenal ulcer of long standing. The excellent results following gastroenterostomy for stenosing lesions of the pylorus led to a broadening of the applicability of the operation to ulcers which had not progressed to cicatricial stenosis, and it became the accepted procedure in the surgical treatment not only of the complicated but of the uncomplicated peptic ulcer as well.

Condemnation of the operation has occurred during the past decade through the frequency with which recurrence or new ulceration in or about the stoma has occurred. The incidence of such recurrence or the development of gastrojejunal or jejunal ulcer has varied in published reports from 3.5 (Wilke⁸) to 34 per cent (Lewisohn). It is more than probable that the true incidence of recurrence following gastroenterostomy, when the operation has been judiciously applied, does not exceed 5 per cent. The relatively high incidence of recurrence in the experience of certain surgeons has in my opinion served as an unjust indictment of an operation which, when skillfully applied in carefully selected cases, has achieved results within a mortality rate unsurpassed by any subsequently designed operative procedure.

The operation of gastroenterostomy requires no defense, for it stands unchallenged on its home ground and in its own field of applicability for which it was originally designed and in which its reputation was achieved—pyloric obstruction. Experience has proved that widening of the range of applicability of the operation to include certain nonobstructing lesions has been justified by a high percentage of excellent results. There are certain duodenal ulcers without pyloric obstruction in which an excision of the lesion may be highly desirable, particularly the bleeding ulcer, and certain subacute perforating ulcers, where the surrounding inflammatory reaction does not allow sufficient mobilization of the duodenum to perform excision, that the operation of gastroenterostomy may be the only applicable procedure. The results of gastroenterostomy in the chronic, repeatedly recurring ulcer, or the subacute perforating lesion without obstruction, approximate very closely those following gastroenterostomy for pyloric obstruction. The operation likewise possesses some merit in the bleeding

duodenal ulcer, wherein it has permanently controlled the symptom of hemorrhage in approximately 50 per cent of the cases.

Even though it has not been the uniform practice to employ the operation of gastroenterostomy in conjunction with a simple closure of an acute perforation of peptic ulcer, I have personally performed posterior gastroenterostomy in practically all such cases in addition to closure of the perforation, when the operation was done within twelve hours from the time of the perforation. The curability of ulcer has been materially higher in the experience of those employing gastroenterostomy in conjunction with closure than with simple closure alone. The worth of posterior gastroenterostomy in establishing gastrointestinal continuity, following pylorotomy for duodenal or gastric ulcer, after the original Billroth II method should not be forgotten. Posterior gastroenterostomy, following local conservative excision of a gastric ulcer in the presence of gastric retention, not on the basis of pyloric obstruction but because of disturbance of gastric motility, has contributed materially to the excellent results obtained by conservative local excision of ulcer of the stomach.

Experience has shown that gastroenterostomy has not been productive of brilliant results when performed more or less promiscuously, and particularly in those cases in which the history is short and chronicity has not been established. I wish to urge that in the enthusiasm developed during recent years for other surgical procedures that we remain mindful of the excellent results that have followed gastroenterostomy in the past within the confines of true indications for its applicability, particularly for duodenal ulcer (Gatewood⁹ 82 per cent; Balfour¹⁰ 87 per cent).

PYLOROPLASTY

Quite coincident with departure from the closely limited indication for gastroenterostomy, pyloric obstruction and the institution of surgical treatment for duodenal ulcer before cicatricial narrowing of the pylorus occurred, certain local operations were devised, most of which included excision of the ulcer when situated in the anterior or superior wall of the duodenum or just above the pylorus. The early direct operation or pyloroplasty, of which the Heineke-Mikulicz and the Finney pyloroplasty provided for division of the pyloric sphincter and enlarging of the pyloric outlet, encountered consider-

8. Wilke, D. P. D.: Jejunal Ulcer; Some Observations on its Complications and their Treatment. *Ann. Surg.*, 99:401-409, March, 1934.

9. Gatewood: Immediate Mortality and Late Results of Operations for Peptic Ulcer. *Ann. Surg.*, 92:554-557, Oct., 1930.

10. Balfour, D. C.: Results of Gastroenterostomy for Ulcer of Duodenum and Stomach. *Ann. Surg.*, 92:558-562, Oct., 1930.

able difficulty is achieving results comparable to those obtained following gastroenterostomy. The numerous modifications of pyloroplasty that have been recommended during the past two decades may reasonably be assumed to indicate that not entirely satisfactory results had occurred. In fact, Horsley,¹¹ in 1930, reported only 45 per cent satisfactory results following his modification of the Heineke-Mikulicz operation, and in the same year Finney¹² reported that in a comparative study the results of his pyloroplasty were exactly the same as those following gastroenterostomy in his hands, but that an element against gastroenterostomy was a higher mortality rate than for pyloroplasty.

Judd¹³ has modified the various types of pyloroplasty by the more radical procedure of excision of the cap of the duodenum including the ulcer, and removal of the anterior two-thirds of the pyloric sphincter muscle, reestablishing the normal continuity by gastroduodenostomy. He has recently stated that, "satisfactory relief will be obtained in 85 to 90 per cent of all cases of duodenal ulcer, following either gastroenterostomy or the above modified pyloroplasty. However, when this local operation is applicable, it offers additional advantages which make it the preferable procedure, especially in young persons, for it removes the lesion, minimizes the possibility of future bleeding, and does not impose a situation favoring formation of a jejunal ulcer."

PARTIAL GASTRECTOMY

Few American surgeons have subscribed to the principle of partial gastrectomy for duodenal ulcer. Such a radical procedure may be justified in occasional instances, but usually ulcer of the duodenum is most satisfactorily operated upon by one or the other of the above conservative procedures. The benignity of the lesion and the relatively high mortality rate of the operation seldom justifies partial gastrectomy. Chiasserini¹⁴ of Rome has recently reported a mortality rate of 9.2 per cent in a series of 76 gastric resections for duodenal ulcer. Also partial gastrectomy does not provide assurance against recurrent ulcer. There are certain gastric ulcers in which partial gastrectomy is particularly suited and advantageously employed. In my ex-

perience it has been reserved largely as an operation of necessity and has not been used in preference to local excision of the gastric ulcer with posterior gastroenterostomy. The latter conservative operation has been employed in 77 per cent of the cases of gastric ulcer which I have operated upon, using a partial gastrectomy, with the Polya or one of the Billroth methods of restoring gastrointestinal continuity in the remaining cases.

It is not my desire at this time to discuss surgical procedures for reactivation of the original ulcer, recurrence, gastrojejunal or jejunal ulcer. However, the applicability of certain procedures in the surgical treatment of duodenal and gastric ulcer is materially influenced by the incidence of recurrence or new ulcer formation at or about the operative stoma, whether the operation has been a gastroenterostomy, pyloroplasty or partial gastrectomy. Unquestionably the results of surgical procedures are dependent largely upon the effectiveness of the control of gastric secretion and neutralization of gastric acidity. Reactivation of the ulcer and recurrences develop most frequently when the gastric secretion has not been controlled or the gastric acidity neutralized by the operation.

Most interesting observations have been made in the experimental animal on gastric acidity as it is affected by interfering with the normal mechanism of acid secretion in one or the other of its phases. Interference with the first or psychic phase by dividing the vagi has resulted in but a temporary and not a permanent reduction of acids. In such experimental attempts at control of gastric acids the work of Hartzell,¹⁵ subsequently that of Vanzant,¹⁶ and most recently that of Shapiro and Berg¹⁷ are of interest. The relation of the pars pylorica, not only as regards its acid-producing glandular structure but its mucosal hormone effect upon acid secretion, if such exists, has intrigued the interest of many. Priestley and Mann¹⁸ have concluded after experimental investigation that in the dog the pyloric mucosa apparently plays only a minor part, if any, in gastric acidity. More recently Shapiro and Berg have shown that in the experimental animal, even following a double vagotomy and subtotal gastrectomy, considered the most radical pro-

11. Horsley, J. S.: Immediate Mortality and Late Results of operations for Gastric and Duodenal Ulcers. *Ann. Surg.*, 92:545-553, Oct., 1930.

12. Finney, J. M. T. and Hanrahan, E. M., Jr.: Results of Operations for Chronic Gastric and Duodenal Ulceration; Statistical Study of 30-year Period. *Ann. Surg.*, 92:620-631, Oct., 1930.

13. Judd, E. S. and Phillips, J. R.: Pyloroplasty: Its Place in Treatment of Peptic Ulcer. *Ann. Surg.*, 100:196-201, July, 1934.

14. Chiasserini, A.: Gastroduodenal Resection as Systematic Treatment of Duodenal Ulcer. *Ann. Surg.*, 100:172-195, July, 1934.

15. Hartzell, J. B.: Effect of Section of Vagus Nerves on Gastric Acidity. *Am. J. Physiol.*, 91:161-171, Dec., 1929.

16. Vanzant, F. R.: Late Effects of Section of Vagus Nerves on Gastric Acidity. *Am. J. Physiol.*, 99:375-378, Jan., 1932.

17. Shapiro, P. F. and Berg, B. W.: Return of Gastric Acidity after Subtotal Gastrectomy and Double Vagotomy. *Arch. Surg.*, 28:160-179, Jan., 1934.

18. Priestley, J. T. and Mann, F. C.: Gastric Acidity with Special Reference to Pars Pylorica and Pyloric Mucosa; Experimental Study. *Arch. Surg.*, 25:395-403, Aug., 1932.

cedure which could be employed to alter the different phases of gastric secretion, only a temporary diminution in acidity occurred. Subsequently the secretion of acid returned to its original preoperative level, with variation only in the rate of recovery of normal gastric secretion. They concluded that there is no experimental proof or convincing clinical evidence to support the hypothesis that subtotal gastrectomy, even when combined with vagotomy, is the operation of choice for the surgical cure of peptic ulcer in man on the basis that it provides for permanent lowering in the secretion of hydrochloric acid and thus prevents the development of recurrences and jejunal ulcers.

On the other hand, Steinberg, Brougher and Vidgoff¹⁹ have demonstrated that after the antrum is removed, the free acidity of the contents of the stomach is considerably reduced or is entirely absent. Steinberg²⁰ has furthermore stated that the biggest factor in the reduction of acidity is the neutralization of the contents of the stomach by the influx of the alkaline contents of the duodenum or jejunum, and the rapid emptying of the stomach.

To recapitulate briefly, various types of operations for duodenal and gastric ulcers have been designed, with or without excision of the lesion, to either neutralize gastric acidity by conservative procedures, or through partial gastrectomy to modify or reduce gastric secretion by eliminating a large portion of the acid-producing mucosa, as well as removing the so-called hormone-elaborating part of the stomach. No operation has yet been devised which controls gastric secretion or neutralizes gastric acidity in all cases and provides complete assurance against reactivation or recurrence of ulcer. Little question exists regarding the advisability and necessity of surgical intervention in ulcer complicated by acute perforation, pyloric obstruction or hemorrhage. Various factors are influential in the selection of cases of uncomplicated ulcer for surgical treatment. Unsatisfactory response to careful medical management, disability or the economic and occupational inability to continue indefinitely on medical treatment command due consideration of the advantage of operation. No one operation possesses universal applicability. The operation of partial gastrectomy is seldom justified in duodenal ulcer and may properly be reserved as one of necessity for gastric ulcer when a more conservative procedure is not applicable.

19. Steinberg, M. E., Brougher, J. D. and Vidgoff, I. J.: Changes in Chemistry of Contents of Stomach Following Gastric Operations. *Arch. Surg.*, 15:749-761, Nov., 1929.

20. Steinberg, M. E.: Exclusion Operation for Duodenal Ulcer; Experimental and Clinical Study. *Am. J. Surg.*, 23:137-147, Jan., 1934.

EARLY CANCER OF THE CERVIX UTERI THE PRACTICABILITY OF ITS RECOGNITION BEFORE THE STAGE OF ULCERATION*

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If there is such a thing as "prevention of cancer," especially as it concerns the cervix uteri, then the recognition and eradication of cancer here in its earliest stages becomes an inseparable part of the scheme of so-called cancer prophylaxis. It is not within the scope of this paper to discuss the frequently agitated matter of cancer prophylaxis except to mention the inescapable conclusion that, while the proposed reasons and measures for cervical cancer prophylaxis sound practical, convincingly real and possess a profound emotional appeal, they still lack an acceptable factual basis.¹ Consequently the detection of cancer of the cervix uteri in its earliest stages, i. e., before ulceration, represents at the present time the only condition for which anything approaching an acceptable pathologic foundation can be offered and against which efforts of so-called cancer prophylaxis may reasonably be directed.

The foregoing proposition presents, of course, a clean-cut issue, and one to which possibly little dissent will be offered. For its fulfillment, however, there remains the practical obstacle of recognizing cancer of the uterine cervix before it has become an ulcerative lesion. We purposely emphasize ulceration, for it is the process of necrosis and ulceration which give rise to those objective signs of cancer (abnormal vaginal discharge) that the patient first notices and provides her first inkling, if she will heed it, of mischief. It is also during this stage that examination will ordinarily reveal an obvious tumor process, if the lesion is situated on the vaginal portion of the cervix.

The attempt has now been made to bridge the hiatus between the phase of ulcerating cancer and its antecedent stage where necrosis and ulceration have not occurred. This has been aptly termed "clinically latent cancer." We do not, however, wish to convey the impression that, insofar as the patient's initial symptoms are concerned clinically, latent cancers are all incipient. Obviously they are not, for it is not a rarity to see a woman whose first symptoms, if her story is to be believed, are of only a few days' duration and yet her cervix is the site of a well developed cancer.

*Read before a meeting of Southern Oregon Medical Society, Ashland, Ore., May 14, 1935.

1. Martzloff, K. H.: Recognition of Early Cancer of Cervix Uteri. *Internat. Clin.*, 4:179-196, Dec., 1934.

The clinical methods devised to bring to the attention of the physician areas of early cancer are limited in their application to the vaginal portion of the cervix. Our discussion will, therefore, be limited to a consideration of this portion of the uterus. Any attempt to recognize cancer in this situation before the stage of ulceration or obvious tumefaction brings one inevitably to a consideration of the epithelial changes of *probable beginning cancer* which presumably precede the development of established cancer.

In speaking of *probable beginning cancer* it is well to have clearly in mind just what is meant. Presumably cancer of the portio in its incipiency passes through a stage where the cells of the stratified epithelium in a localized area possess all the histologic earmarks of cancer but lack the property of invasion. This process, limited to the normal boundaries of the epithelial zone, has been given various descriptive terms such as precancerous change, cancer in situ, superficial cancer, etc. Such appellations, therefore, either assume that such a process is cancer or is destined to become cancer. Yet, as a matter of fact, we cannot say whether the ultimate fate of such a lesion will be one of steady progression to invasion and full-blown malignancy or whether there may occur a process of regression and restitution to normal. In view of this uncertainty we think a term such as *probable beginning cancer*, which carries the connotation of doubt, while obviously unsatisfactory, best describes such an area.

Localized areas of *probable beginning cancer* on the portio vaginalis cervicis occur generally in the vicinity of the external os. Ordinarily such areas have been chance discoveries revealed during the routine histologic examination of tissue obtained at operation. Comparatively recently, however, Schiller,² in studying a large operative material in Kermanner's clinic, found ten instances of either early bona fide (established) cancer or of so-called superficial cancer (probable beginning cancer) and observed that they occurred in the region of the external os. At about the same time Hinselmann³ was impressed by extensive cervical leucoplakiae that he observed in two of his patients. Histologic study of these leucoplakiae by v. Franqué⁴ revealed the histologic structure of *probable beginning can-*

cer and the process was considered as one of superficial cancer. It, therefore, seemed obvious to Hinselmann that large leucoplakiae must begin as small ones, in fact, so small that they might escape detection in the course of a routine speculum examination of the cervix uteri and, therefore, an early cancer might escape notice.

The problem, then, was how to demonstrate these areas during the clinical examination of the patient, where there is neither ulceration, obvious tumor formation nor other symptoms that might arouse the suspicion of malignancy. Two methods to solve the problem have been proposed almost simultaneously by Schiller and Hinselmann. Both have for their ultimate aim the purpose to render visible the areas under consideration but the procedures used to bring this about are fundamentally different.

We will first consider the *iodine test* proposed by Schiller.⁵ This is based on the fundamental observation of Warburg that cancerous tissue has a higher sugar metabolism (glycolysis) than normal tissue. On the basis of this observation it apparently has since been shown that cancerous epithelium when stained for glycogen usually shows its deficiency or absence. Finally Langhans, according to Schiller, has shown that glycogen in living tissue stains with iodine. Using this observation Schiller has been able to demonstrate that the cells belonging to areas of *probable beginning cancer* as well as the grossly normal but cytologically cancerous epithelium which surrounds some well established cancers do not give the dark brown iodine color reaction as does normal epithelium. The difference in the staining reaction between the two types of intact epithelium offers a sharp and visible contrast which the alert examiner cannot easily overlook.

The iodine test is done as follows: The cervix is exposed as in any speculum examination and secretion gently wiped away with cotton. Gentle lavage with green soap solution followed by drying also does not interfere with the test. A cotton pledget dripping wet with Lugol's solution is applied repeatedly to the cervix until it assumes a deep chestnut brown color. It requires several seconds for the color to develop. Pathologic epithelial areas, in particular cancer epithelium, according to Schiller, take no stain or at most assume a faint yellow color and, therefore, stand out in distinct relief.

It should be emphasized, as pointed out by Schiller, that nonstaining areas are by no means always

2. Schiller, W.: Untersuchungen zur Entstehung der Geschwülste; Collumcarcinom des Uterus. Virchow's Arch. f. path. Anat., 263:279-367, 1927.

3. Hinselmann, H.: Zur Kenntnis der präcancerösen Veränderungen der Portio. Zentralbl. f. Gynäk., 51:901-903, April 9, 1927.

4. von Franqué, O.: Leukoplakie und präcancerösen Veränderung des Plattenepithels. Zentralbl. f. Gynäk., 51: 898-901, April 9, 1927.

5. Schiller, W.: Zur klinischen Frühdiagnose des Portiokarzinoms. Zentralbl. f. Gynäk., 52:1886-1892, July 28, 1928.

due to the changes of probable beginning cancer but may represent, (1) an area of cornification as seen in some leucoplakiae, (2) a healing erosion when all epithelium is not lost, or (3) an area of epithelium altered by inflammation. Also the mucosa of the cervical canal and the vermilion zone which is frequently found on the portio in the region of the external os and often incorrectly termed an erosion, do not stain with the iodine solution. Schiller also indicates that, where there is ulceration whether benign or malignant, the test is of no value since the ulcer stains brown.

According to Schiller the iodine test is specific only when it stains. Unbroken epithelium which stains dark brown is, therefore, normal. In our experience this has generally, but not always, been true. Obviously the test has its distinct limitations and, if not applied with discrimination and interpreted with due reserve, will lead in the hands of the uncritical enthusiast to much unnecessary alarm, unjustified "tinkering" and possibly undeserved discredit for a procedure that may really prove helpful.

Since beginning the use of this test in 1930, we have gradually accumulated biopsy material from unstained areas on the portio and also have been able to study specimens obtained by conical enucleation of the cervix, where the tissue removed was meticulously shielded from instrumental trauma. In the latter instance the unstained areas were outlined by knife incision so that there could be no mistake in identifying the proper area when the entire specimen was at hand. Such tissues were immediately fixed in formalin and a detailed report of our findings is now being prepared.

As we have previously mentioned, this test has its distinct limitations and this was brought home to us gradually as we studied patients and biopsy material so that we slowly gained the impression that the test has greater limitations than those given by Schiller. However, it is only since we have begun to assemble all our material and correlate the clinical and histologic findings that we appreciate more fully the foregoing.

Briefly, we have found in some instances that an area of stratified epithelium, which remained unstained by the iodine solution, showed no greater departure from normal than other areas on the same cervix that stained. We have also observed an instance, a mere coincidence, where an area that assumed a normal iodine color revealed a pronounced histologic deviation from the normal, while the area that did not stain was essentially unnote-

worthy. We have also been impressed by the frequency with which an area that does not stain on one occasion disappears and takes a normal stain on a subsequent visit. We can also confirm Henriksen's⁶ observation that stratified epithelium overlying a nabothian follicle cyst may remain unstained. However, this is not always so and the varied reaction may possibly be dependent on the pressure exerted by the cyst on the overlying epithelium. Finally, none of our biopsies from unstained areas have so far shown a histologic appearance that might be termed *probable beginning cancer*, precancerous, etc. Hence, we believe that a negative iodine test (nonstaining) may occur in the absence of any definite histologic abnormality, while an obviously abnormal area may give a normal iodine reaction (dark brown stain). It is, then, obvious as we have noted elsewhere that a negative iodine test is not pathognomonic of malignancy but is merely the signal which calls for further careful study.

Colposcopic examination. The other clinically applicable method to reveal occult areas of *probable beginning cancer* is proposed by Hinselmann and depends on the use of the magnifying lens. For this purpose he has devised an ingeniously useful stand on which is mounted a binocular dissecting prism. This unit he has termed the "colposcope." With proper illumination, which the colposcope provides, the cervix may be inspected under a magnification of ten to fifteen diameters or more and minor abnormalities noted which otherwise might escape the attention of the examiner. The primary purpose of this method of examination was to detect small leucoplakiae in view of the fact that Hinselmann believes all cervical cancers at some stage in the course of their development appear as leucoplakiae. This is, of course, a debatable matter.

Leucoplakiae of the cervix uteri occur generally in the region about the external os of the portio vaginalis, where columnar and stratified epithelium meet, i.e., the transition zone. As ordinarily encountered by us they are small, 1 to 2 mm. in their largest dimension, generally less than 5 mm.; larger leucoplakiae are rarities.

Histologically these small white spots, in our experience, may show no noteworthy cytologic alteration other than possibly a stratum corneum or a slight alteration of the cells in the basal zone and this is by no means always demonstrable. From this innocuous appearance, which is the type we have with few exceptions generally encountered, every

6. Henriksen, E.: Precancerous and Carcinoid Lesions of the Cervix Uteri. *Surg. Gynec. & Obst.*, 60:635-644, March, 1935.

cytologic gradation may occur so that at the other end of the picture we may have the structure of *probable beginning cancer*. Now it is the latter property of an occasional leucoplakia that makes it important clinically and its recognition essential for, as we have indicated elsewhere,⁷ the question of cervical leucoplakia and its conversion into established cancer (with invasion) is a vexatious one. We cannot, for example, answer the most elemental question of all concerning leucoplakiae that show the histologic structure of *probable beginning cancer*, namely, what happens to these areas of so-called superficial cancer.

To repeat our previous query, may they regress and lose their cancerous cytology or do they live up to their dangerous appearance and ultimately invade? The fact that there are now recorded a few instances of early established cancer (where *bona fide* invasion has occurred) which presented the gross appearance of leucoplakia^{8,9} does not alter the validity of our query. Obviously, the fact that a recently observed leucoplakia is found to harbor an established cancer is not proof that the cancer began as such. It may seem to the casual reader that this question is largely an academic one, yet it has its eminently practical aspect, for when one is confronted by a bit of tissue that shows the histologic picture of *probable beginning cancer*, it is essential to know what further steps are necessary to safeguard one's patient. The latter is beyond the scope of our discussion. However, it may be mentioned that, before a final decision is reached, thorough study of the area under consideration is essential so that the presence of an established cancer may be affirmed or excluded. Consequently it is necessary, when suspicious areas are observed with these procedures, that adequate tissue be removed for study and that proper laboratory facilities and a competent pathologist familiar with the peculiarities of gynecologic pathology be available.

Our experience with the colposcope and the study of leucoplakia extend over a period of about four and one-half years. During this time we have found, in comparing and combining the iodine test and the colposcopic study, that white areas seen with the colposcope may or may not stain with the iodine. Also cervixes that show no evidence of leucoplakia may reveal unstained areas with the iodine test. It has also been interesting to note in patients who

have been under observation for several years that white spots seen on one occasion have disappeared, while similar areas may be present on other portions of the cervix. In order to make these observations accurate it is necessary, in addition to a word description, to make a careful diagram of the cervix at the time of the examination so that nothing may be left to memory or imagination. Finally, the small leucoplakiae that we have observed with the colposcope have not so far shown a histologic structure that could be designated as *probable beginning cancer*. An instance of this type previously reported by us¹⁰ was not observed with the colposcope.

It should not be inferred from what has been said that Hinselmann finds the picture of *probable beginning cancer* in all the leucoplakiae studied by him. He does not, but he is of the opinion that these lesions are definitely precancerous and that 20 per cent of leucoplakiae that are studied are carcinomatous.¹¹

Small white spots, in our experience, are fairly common findings on cervixes that have been infected or have been damaged by childbirth. It seems fairly obvious and we are in agreement with Cordua¹² that, if 20 per cent of these lesions are carcinomatous, then the incidence of cervical cancer would be much higher than it is.

A final word in conclusion concerning the colposcope. It is probably a truism that direct observation is one of the indispensable methods of medicine. Therefore, at first sight, it apparently follows that the colposcope, which facilitates visual observation of the cervix uteri, might be placed in a category with such indispensable adjuncts to clinical observation as nasal or aural specula, the proctoscope, cystoscope, etc.

However, the corollary is not as apt as it might seem, for after all "the proof of the pudding is the eating," and while we use it routinely, in only a few instances has the colposcope been of essential service. We are of the belief that it is not an indispensable instrument for the profession at large, since it has several detractors which probably will prevent its general adoption. These include its expense and the need of extended experience to correctly interpret what one sees. The latter makes it necessary for the clinician to correlate the colposcopic appearance of the cervix with the histologic picture of the area in question and this requires

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8. Emmert, F.: Recognition of Cancer of Uterus in its Earlier Stages. J. A. M. A., 97:1684-1687, Dec. 5, 1931.

9. Haselhorst, G.: Portioleukoplakie und Karzinom. Ztschr. f. Geburtsh. u. Gynäk., 101:622-631, 1932.

10. Martzloff, K. H.: Leucoplakia of Cervix Uteri; Manifestation of Early Malignant Change. Am. J. Obst. & Gynec., 24:57-67, July, 1932.

11. Hinselmann, H.: Die Grundlagen der Kolposkopischen Karzinombekämpfung. Zentralbl. f. Gynäk., 58:2798, Nov. 24, 1934.

12. Cordua: Discussion of Hinselmann's Paper. Zentralbl. f. Gynäk., 58:2798, Nov. 24, 1934.

frequent biopsies and study of the tissue so obtained by the clinician himself. The obtaining of a biopsy, again, makes these methods more than simple office procedures, for I believe that in these suspected border-line processes a proper biopsy should contain not only the overlying epithelium but also some underlying stroma. For this reason tissue should be obtained with a scalpel rather than with a curette.

Our remarks should not be construed as unfriendly criticism of recently developed methods designed to facilitate recognition of early cancer. They deserve fair and prolonged trial. However, on the basis of an appreciable personal experience we now believe that they possess greater limitations than has been ascribed to them or is generally reflected in the literature. If these restrictions are appreciated one will not be discouraged by finding little where much was anticipated.

DETERMINATION OF THE SEX OF THE UNBORN CHILD *

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Means of determining the sex of the offspring before birth has long been a matter of interest to the physician and the laity. The Egyptians, 3500 years ago, apparently had no doubt as to whether their women would bear male or female children, according to the Berlin Medical Papyrus No. 3038 (sixteenth century B.C.) 11 2-5, which says in a section concerned with Egyptian obstetrics: "To see if a woman is pregnant or not pregnant: Barley and wheat are moistened with the woman's urine daily like dates or pastry in two bags. If they either germinate, so will she give birth; if the barley germinates so will it be a boy; if the wheat germinates so will it be a girl; if they do not germinate, then she is not pregnant."

In a communication received from H. Grapow¹ of the State Museum of Berlin, he has remarked regarding the translation of the Egyptian passage that in the Egyptian language, the gender of the word "wheat" is feminine and of the word "barley" is masculine.

The belief that the estrin, present in the urine

of pregnant women, is capable of modifying plant growth induced Manger² to investigate the reliability of this Egyptian report. He found that more rapid growth of barley compared to that of wheat speaks for the female sex of the fetus, whereas a nonaccelerated or retarded growth of barley indicates that the fetus is male. His observations on a hundred women in late pregnancy enabled him to make a correct diagnosis of the sex of the fetus in eighty women. We have not been able to corroborate his findings.

Dorn and Sugarman³ recently proposed a plan which enabled them to predict correctly the sex of eighty out of eighty-five babies. They injected the urine of women in the last trimester of pregnancy into young male rabbits and by observing the testes of these animals for the presence or absence of spermatogenesis could predict the sex of the new born. Curphey and Romer⁴ have already reported unfavorably on the work of Dorn and Sugarman. Daily⁵ still more recently reported a similar study, using male rats as the experimental animal. Murphy and De Renyi,⁶ and Pankratz⁷ were unable to duplicate their results. It seemed to us that this work probably needed or was entitled to further study, and accordingly we decided to investigate the results of Dorn and Sugarman. For the purpose of our study we used fifty-five immature male rabbits of the New Zealand white variety. These animals were carefully selected for age and position of the testes in the inguinal canals. The animals were isolated as early as possible and maintained on a diet adequate in vitamins. The age of the rabbit was found to be no accurate criterion of its testicular development. Testicular descent was found to occur as early as nine and one-half weeks, and as late as fifteen weeks.

There seemed to be a highly developed cremasteric reflex in these young animals which made it difficult to determine whether the testis was up or down. We found that by gentle manipulation the testis at the beginning of the descent could be easily slipped down the canal. Microsections of the testes of control animals handled in this manner showed no evidence of activity when the testis could not be brought to the lower end of the canal

*From the Departments of Pathology and Gynecology, University of Oregon Medical School, aided by the Research Fund of the Rockefeller Foundation.

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2. Manger, J.: Investigations on Determination of Sex from Urine of Pregnant Women. *Deutsche Med. Wchnschr.*, 59:885-887, June 9, 1933.

3. Dorn, J. H. and Sugarman, E. I.: Method for Prediction of Sex in Unborn; Preliminary Report. *J. A. M. A.*, 99:1659-1660, Nov. 12, 1932.

4. Curphey, T. J. and Romer, A. S.: Sex Determination Test of Dorn and Sugarman. *J. A. M. A.*, 101:1630-1632, Nov. 18, 1933.

5. Daily, E. F.: Predicting Sex of Unborn Child. *Am. J. Obst. & Gynec.*, 27:721-722, May, 1934.

6. Murphy, D. P. and De Renyi, G. S.: Sex Determination Test of Dorn and Sugarman; Report of 51 Experiments. *Endocrinology*, 18:521-526, July-August, 1934.

7. Pankratz, D. S.: Sex Determination Test of Dorn and Sugarman. *Am. J. Obst. & Gynec.*, 29:740-741, May, 1935.

by manipulation. It had been found that the testes of a rabbit descend into the scrotum after a migration period of ten days to two weeks. Although spermatogenesis is not fully developed until after the testis has reached the scrotum, we found mitotic figures and secondary spermatocyte formation in control animals while the testis could still not be pushed into the scrotum, i.e., while in the lower end of the inguinal canal. This was evidence to us that spermatocytogenesis commences while the testis is still in the inguinal canal.

The difficulties we encountered are obvious. The urines were voided specimens and were analyzed for the presence of sugar, protein and ketone bodies. The latter were never found. The presence of traces of sugar and protein apparently made no difference in the outcome. In all but nine instances the patients whose urine was used were in the last trimester of pregnancy. The animals received 12 cc. of urine intravenously and the testes were removed forty-eight to sixty hours after the injection. The testes were fixed in Zenker's fluid and sections stained with hematoxylin and eosin.

Microscopic sections revealed mitotic figures in the testes of every animal injected, as well as in those controls not injected, in which the testes occupied the lower end of the canal or the scrotum at the time of their removal. It was also noted that the size of the testis as measured in millimeter length varied with the degree of descent. Certainly there were marked differences in the degree of testis activity. From the few control uninjected animals the testes showed the least amount of activity, none whatever being seen when the testes was in the abdomen or when entering the upper end of the inguinal canal. The testes of all the animals injected descended into the lower end of the canal or into the scrotum.

It was noted that, whenever a mistake in sex diagnosis was made by Dorn and Sugarman, their error was in favor of the female sex of the fetus. In other words, they seemed to have made their errors by happening to find evidence of spermatocytogenesis, or else because they examined sections more thoroughly in these cases.

When one considers the experimental work of Engle,⁸ a new question arises. Does urine from pregnant women cause spermatogenesis in an immature rabbit's testes or does it cause testicular descent and spermatogenesis to occur secondarily in

the absence of the body heat of the rabbit? We wanted to determine if spermatogenesis could be induced in the immature rabbit's testes in the absence of descent. Accordingly, one inguinal canal in each of eight animals was occluded at its center by a single silk suture passed around the adjacent structures through a skin incision made in the same region. Two of these animals were run as controls, the other six were injected with specimens of urine from women in the last trimester of pregnancy. The injections were made after the operative wound had been allowed to heal for two weeks and the uninvolved testicle had reached the lower end of the canal, while the involved testicle remained in the upper half of the canal, held there by the silk ligature.

Upon examination of microscopic sections of all the testes of this smaller series of animals we found spermatocytogenesis in all instances. The degree of activity seemed to vary directly with the degree and duration of descent of the testes. This part of the experiment was not entirely satisfactory, inasmuch as the operative procedure did not hold the testes within the abdomen. However, it did show the rather marked difference in development of a normally descended testis and one suspended in the inguinal canal.

We cannot postulate a specific hormone for a male or female fetus.** We should like to point out the mechanisms of hormone action, that the natural variations of animals and the experimental technic all tend to complicate a procedure of hormone sex diagnosis of the fetus. When dealing with the urine, which has been found to contain so many hormones, we must take cognizance of hormone antagonism.

It is possible that the ratio of the estrin to the prolactin found in the urine of pregnant women is different when the mother carries a male or a female child. Quantitative estimations of these two substances in fresh twenty-four hour urinary specimens might lead to a more definite conception of hormone sex diagnosis. It is generally accepted that the excretion of prolactin decreases after the fifth month of pregnancy, whereas the estrin excretion increases throughout pregnancy. Could it not be that the increased production of estrin actually inhibits or inactivates prolactin in the latter months of pregnancy? For what other reason would excretion

8. Engle, E. T.: Experimentally Induced Descent of Testis in Macacus Monkey by Hormones from Anterior Pituitary and Pregnancy Urine. *Endocrinology*, 16:513-520, Sept. Oct., 1932; Action of Extracts of Anterior Pituitary and of Pregnancy Urine on Testes of Immature Rats and Monkeys. *Endocrinology*, 16:506-512, Sept.-Oct., 1932.

**Throughout this paper, for the sake of simplicity, we have chosen to speak of the follicular or female sex hormone as estrin, and the pituitary-like hormone of the urine as prolactin (luteinizing hormone).

9. Goldman, A. and Stern, A.: Treatment of Undescended Testes by Injections of Prolactin. *New York State J. Med.*, 33:1095-1096, Sept. 15, 1933.

of the latter hormone decrease before term? Estrin is quite stable, while prolan is easily inactivated with heat, and clinically Engle, Golman and Stern,⁹ Schapiro,¹⁰ and Brosius and Shaffer¹¹ and others have shown that prolan preparations from the urine, free of female sex hormone, have a definite stimulating effect on the testes of animals and human beings.

Fukushima¹² has obtained little or no increase in the size of animal testes following the injection of whole urine of pregnant women (reports are contradictory on this subject). He feels that estrin is antagonistic to the prolan. He tested the prolan extracted from the urine of pregnant women and found that the testes of the animals became hyperemic and almost twice their original size. He thinks that this stronger action of prolan was due to the fact that the inhibiting influence of estrin was absent. In order to demonstrate this more conclusively, he heated the urine to the boiling point and then injected it, thus obviating the effect of the prolan. In these instances there was no increase in size of the testes.

We cannot say just how rapidly one or the other of the two hormones, with which we are concerned, loses some of its potency on standing, or by changes in temperature, bacterial putrefaction, reaction of the urine or other factors. The varying degrees of testicular activity seen in our experimental animals may well be explained on the basis of the presence of varying amount of prolan.

Moore and Price,¹³ following their studies on sex hormone antagonism, laid down four cardinal principles which seem worthy of mention and which we cannot refute.

1. Gonad hormones stimulate homologous reproductive accessories, but are without effect upon heterologous accessories.
2. Secretions produced by the hypophysis stimulate the gonads to function both in germ cell production and in hormone secretion.
3. Gonad hormones have no direct effect on the gonads of either the same or opposite sex.

10. Schapiro, B.: Clinical Observations on Action of Sex Stimulating Hormone of Anterior Lobe of Pituitary upon Male Genitalia. *Ztschr. f. klin. Med.*, 114:610-622, 1930. (Abs. *Endocrinology*, 16:694, Nov.-Dec., 1932); Kann Man mit Hypophysenvorderlappen den unterentwickelten Mannlichen Genitalapparat beim Menschen zum Wachstum anregen? *Deutsche med. Wchnschr.*, 56:1605-1607, Sept. 19, 1930.

11. Brosius, W. L. and Schaffer, R. L.: Spermatogenesis Following Therapy with Gonad Stimulating Extract from Urine of Pregnancy. *J. A. M. A.*, 101:1227, Oct. 14, 1933.

12. Fukushima, K.: Modification of Male Gonads by Hormone of Anterior Lobe of Hypophysis. *Zentral. f. Gynäk.*, 57:2680-2687, Nov. 11, 1933.

13. Moore, C. R. and Price, D.: Gonad Hormone Functions, and Reciprocal Influence Between Gonads and Hypophysis and its Bearing on Problem of Sex Hormone Antagonism. *Am. J. Anat.*, 50:13-67, March, 1932.

4. Gonad hormones of either sex exert a depressing effect upon the hypophysis which results in a diminished amount of the sex stimulating factor available for the organism.

Schultze-Rhonoff and Neidenthal¹⁴ have presented evidence that the fetal hypophysis does contain active anterior pituitary hormone, but Bruehl¹⁵ has shown that, irrespective of sex, estrin is found in the blood and urine of the new-born only for the first four days of extrauterine life. On the other hand, the prolan is found in the urine of the new-born for only the first two days, and then in only approximately fifty per cent of the babies.

SUMMARY AND CONCLUSIONS

We have presented the data and discussion of experiments on fifty-five male New Zealand white rabbits, resulting from our investigation of the sex determination procedure described by Dorn and Sugarman. Every animal injected with urine from pregnant women showed some degree of testicular activity which seemed to vary with the degree of the testicular descent. The changes seen microscopically formed no basis for sex differentiation of the fetus.

As a result of our investigation we have come to the conclusion that it is impossible to determine the sex of the offspring by the method and technic described by Dorn and Sugarman. We do believe, however, that the anterior pituitary-like hormone in the urine of pregnant women, when injected into the immature male rabbit, increases the rate of descent of the testis and that with this increase in the rate of descent there is an increase in spermatogenesis.

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14. Schultze-Rhonoff, F. and Niedenthal, R.: Researches Concerning Hormonal Value of Anterior Lobe of Fetal Hypophysis in Animal Experiments. *Zentralbl. f. Gynäk.*, 53:902-907, April 13, 1929.

15. Bruehl, R.: Occurrence of Female Sex Hormone in Blood and Urine of Newborn. *Klin. Wchnschr.*, 8:1766-1767, Sept. 17, 1929.

HAZARDS OF INDUCTION OF PNEUMOTHORAX IN TREATMENT OF LOBAR PNEUMONIA. Jesse G. M. Bullowa and Edgar Mayer, New York (*Journal A. M. A.*, July 20, 1935). believe that there is insufficient evidence to warrant the use of artificial pneumothorax in the treatment of lobar pneumonia except in large hospitals amply equipped for bacteriologic, serologic and roentgenographic studies. Pneumothorax therapy should not be employed by those inexperienced in the treatment of pneumonia or in the use of artificial pneumothorax. The favorable results thus far recorded deal almost entirely with patients in the early stages of the disease and without bacteremia, and in pneumococcal types that otherwise have a low death rate. Prevention of bacteremia in patients has not been demonstrated. The response of dogs to pneumococcus type III is quite different from the response of patients. The use of artificial pneumothorax in pneumonia is still in the experimental stage.

THE ENERGY REQUIREMENTS OF THE SICK

SOME CONDITIONS WHICH MAY ALTER IT

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Energy is the ability or the power to do work. Because the body has certain indispensable work to perform it needs energy. The energy needs of the body may be grouped under four heads:¹ (a) internal work, (b) external work, (c) growth or repair, and (d) heating the body.

For the average adult only the first two need to be considered. The need for energy to build new tissue is almost entirely confined to the periods of childhood, pregnancy or convalescence from wasting disease. Under ordinary circumstances it is not necessary to use food for the purpose of heat. A certain amount of heat is a by-product of work, and this is usually more than is necessary to maintain body temperature at its normal level (98.6° F.).

ENERGY EXPENDITURE

Life is inseparably connected with the expenditure of energy, and the human body is an energy transforming machine.² The energy process is a chemical union brought about by the muscle cells due to the oxygen breathed in together with the carbon (and hydrogen) of the food, and thus energy is liberated.³ The fuel value of the diet as a whole is utilized to meet the energy requirement of the whole body.

In order that we may understand this question of energy exchange, we must have a starting point, where the energy expenditure is fairly constant for a given individual. This is known as the basal rate. This term,⁴ known as basal metabolism, is used to designate the rate of "energy metabolism of the body when at complete rest (both mentally and physically) in a room of ordinary comfortable temperature, and when the observations are made in the so-called 'postabsorptive state,' i.e., twelve to eighteen hours after the last intake of food." It is the irreducible minimum of energy required to keep the body going under the conditions mentioned.

About one-fourth of the energy necessary for maintaining the vital processes is used for the different organs in their various activities. The beat-

ing of the heart, the work of lungs, also the chest and the diaphragm in breathing, the peristaltic movements of the stomach and intestines and the work of such organs as the liver, kidneys and digestive glands in forming their secretion, are all forms of internal work. But the greater part of this internal work is spent in maintaining "muscle tension or tone." The muscles are never completely relaxed and certain life processes go on in every living cell, even in sleep. So the energy necessary to keep the life processes going, even during sleep, may be equal to the amount used by an inactive person for external work during the waking hours.

The amount of heat loss is proportional to the body area.⁵ This area is calculated from certain tables carefully prepared for that purpose. However, in reporting the results of a metabolism test, instead of reporting it as calories per hour per square meter of body surface, the person's rate is given as *per cent above*, or *per cent below*, his normal, i.e., plus or minus per cent. It is, of course, to be remembered that the range of normal basal metabolism is quite wide, from -15 to +15 per cent.

The rate of metabolism is controlled by the chemical principles in the blood, prepared by the glands of internal secretion. As an example, an increase in the secretion of the thyroid gland, will act on metabolism as a "pair of bellows on a fire." Therefore, it is not surprising that in diseases of this gland we may have striking variations from the normal. In the routine of clinical medicine the determination of basal metabolism has found widespread application. In diagnosing borderline cases in endocrine disturbances and in following the progress of the patient after operation or medication has already been thoroughly demonstrated.

FACTORS AFFECTING ENERGY EXCHANGE

In taking a basal metabolism reading as many variable factors as is possible are excluded. By this we mean that the metabolism is uninfluenced by such agencies as muscular activity, digestion of food, exceptional external temperatures. There is no doubt but what age and size must be taken into consideration as well as sex under certain specialized functions, and perhaps other factors play a part. These factors increase the total energy so that the reading is no longer basal. In health as well as in disease, not only a change in basal metabolism, but the total energy exchange must be considered. Very briefly let us consider some of them.

1. Bogert, L. J.: Nutrition and Physical Fitness. W. B. Saunders Co., Philadelphia, 1931.

2. Rose, M. S.: Foundations of Nutrition. Macmillan Co., New York, 1933.

3. Chemistry In Medicine. The Chemical Foundation, Inc., New York, 1929.

4. Sherman, H. C.: Chemistry of Foods and Nutrition. Macmillan Co., 4th Ed., New York, 1932.

5. Rose, M. S.: Feeding the Family. Macmillan Co., 3rd Ed., 1929.

Muscular Work or Activity. Activity or muscular work is the largest external factor to influence the energy requirement, and may increase it above basal as much as 200 per cent. Lying in bed may easily add 10 per cent to the basal rate, but the allowance depends upon the degree of activity.

Age. A certain allowance must be made for growth. However, the exact growth quota is not known.⁶ Ten to fifteen per cent above basal metabolism represents the growth requirement fairly well. There is a small drop in the basal between twenty and thirty years of age, and in old age quite a falling off. In old age cell activity⁶ throughout the body is lessened, the basal metabolic rate gradually declines in consequence, and the desire and capacity for vigorous or sustained muscular activity diminish with the advancing years.

Benedict⁷ opines that basal metabolism throughout the range of adult life may have great significance in indicating relative physical fitness, the level of vital activity and of the physical powers of the individual. With a low basal metabolism he notes there is seemingly a lowered physical fitness or physical vigor, compared with the vitality when a higher metabolism is noted with the same person. Hence, intelligent basal measurements are strongly recommended by Benedict as a part of the annual assessment of physical condition.

Temperature. In the evaluation of the possible influence of climate, the environmental temperature represents the most conspicuous variable. If there is any validity to the idea that in a warm environment the heat production is lower than in a cold one, tropical conditions might be expected to make for a much lower metabolism than that obtaining in the temperate zones.⁸ Housing, clothing, humidity, air currents, etc. all have a direct bearing on metabolism. Under proper environmental conditions the body temperature is maintained by the heat which is being produced as the result of work.

Race. With respect to the significance of race in the evaluation of basal metabolism, there has been considerable difference of opinion. Records of changes in heat production have been published for various oriental peoples, but the validity of the data has been questioned by some writers. Many of these differences are so small Sherman believes they may be due as much to such factors as climate, exercise and diet as to race.

FUEL VALUE OF FOOD

Foods are defined as those substances which furnish energy to the body, build tissue, or regulate body processes. Man must get his energy from his food. In addition to the energy-giving foods, proteins, fats and carbohydrates, there are minerals, water, vitamins (absorbed by the way of the alimentary tract) and oxygen (absorbed by the way of the respiratory tract). It is well to remember that our foods are mixtures of these substances in varying proportions. Water, minerals and vitamins are very valuable in the diet, but do not yield energy. Cellulose (the fibrous framework of plants) is also of no use for energy, but is of value in maintaining a healthy digestive tract for the normal individual.

Although the energy of food is not used directly as heat, we measure it by a heat unit called the *calorie*. The physiologic laboratory gives us the following estimates of the fuel values of foods to the body:

1 gram of carbohydrate.....	4 calories
1 gram of fat.....	9 calories
1 gram of protein.....	4 calories

The fats give two and one-fourth times as much energy as the carbohydrates and the proteins. This is due to the fact that fats contain so much unoxidized carbon and hydrogen as to form a very concentrated fuel, and also that the body can burn them very completely. Proteins do not yield so much energy because they cannot be so completely burned in the body, and carbohydrates because they are already partly oxidized when eaten. The body can and does use these three foodstuffs interchangeably as fuel, although it uses carbohydrates probably more efficiently. The amount of energy which a given foodstuff is capable of yielding in the body depends upon its composition and the extent to which the body can oxidize it.

As far as the energy requirement is concerned, nutrition is an exact science; a definite amount of work calls for a definite amount of energy in the form of food. The only reason that we are not forced to stop working as soon as food is withheld is that we are able to carry stores of fat (and a little carbohydrate) as reserve fuel, and also to draw, if necessary, on our own body protein. We know that it is possible for people to fast thirty and forty days, but this brings about a great depletion of body reserves. When the reserves are exhausted there comes a time when death is the result. On the other hand, if more fuel is supplied than can be used, the surplus is stored as fat.

6. Rose, M. S.: Laboratory Handbook for Dietetics. Macmillan Co., 1929.

7. Benedict, F. G.: Age and Basal Metabolism of Adults. Am. J. Physiol., 85:650-664, July, 1928.

8. Normal Variations in Basal Metabolism. Editorial, J.A.M.A., 91:1291, Oct. 27, 1928.

We can assume that the food supply is adjusted to the individual's needs, if he maintains a uniform normal weight over a long period of time. But many people do not do this, even in so-called health, and certainly not in illness. Many years ago, before we realized that the energy in food must be proportioned to the body's expenditure, it was the custom to feed people who were ill on beef tea and other broths with little fuel value. On this diet the energy could not come from the food, but must come from the body itself. Now it is clearly understood that a man lying quietly in bed throughout the twenty-four hours of the day uses at least twelve calories for every pound of body weight. This means from 1600 to 1800 calories for the average man per day. Care is taken to see that the energy supply comes from food, as far as conditions allow, rather than that the body be permitted to consume itself. The old idea of a general starvation diet for those who are sick is as obsolete as that of "bleeding."

We have said that the cost of body work is computed in calories. In some diseases work costs even as much as double what it should normally. Seldom is the energy expenditure less in sickness than under the same conditions of activity in health, and it may be much more, particularly in cases of fever. In some bodily disorders this increase in the cost of work is responsible for the increase in appetite and the marked loss of weight. In the first few days of illness, fasting or the taking of very little food may not do great harm and may have the advantage of giving the digestive tract a chance to rest. But the energy for body work must still be supplied, so it is drawn from the reserves of the body itself at the rate of about one-half calorie per pound per hour for the twenty-four hour day, if the patient is lying quietly in bed.

How long it will be wise to depend upon the body to furnish its own fuel, wholly or in part, depends upon circumstances. In disturbances of short duration, the physician may consider it quite safe to go from one to three days without food or until the cause of disturbance is removed. In diseases which are likely to run a long course and draw severely upon body tissues, food for fuel must be supplied as nearly as possible in accordance with energy expenditure, to save the patient from being very much weakened and having to undergo a long period of convalescence to regain what he has lost.

Having a suitable diet is a helpful adjunct in the treatment of many diseases, but we shall strictly limit the discussion here to that small group of dis-

eases in which the energy value of the diet is altered, although other factors are equally as important as the dietary control.

REPRODUCTION AND LACTATION

Pregnancy is no doubt one physiologic condition that increases basal metabolism. To estimate the maternal demands in toto in pregnancy, it is necessary to consider, first, the requirements of the fetus and fetal structures, including both the placenta and the amniotic fluid, and, second, the maternal preparation for the demands of labor and future lactation.

During the early months of pregnancy there is no appreciable increase in the energy requirement. From the fifth to the eighth month there is on the average about a 10 per cent increase, depending upon the size and activity of the woman. During the eighth and ninth month there is about a 20 per cent increase, depending again on size and activity. If there is a shortage of energy-giving foods during pregnancy, it may result in a poorly nourished infant, or the infant may grow normally but at the expense of the mother's own tissue. If there is a surplus of energy-giving foods during pregnancy, it may result in an overweight infant with resulting difficult labor or in undesirable gain in the mother's weight.

Ramos et al⁹ studied the basal metabolism of seventy women at different periods during pregnancy. The results showed that the increase nearly always began in the second half of pregnancy. The increase of caloric expenditure is a physiologic necessity which must compensate for the energies expended in forming a new organism and in assuring its nutrition, growth, movements and the functioning of its organs.

Krukenberg and Alberts¹⁰ attempted to determine to what extent the renal activity of pregnant women influences their basal metabolism. Other authors had reported observations on human beings which revealed that the metabolism of the kidneys amounted to from 4 to 6 per cent of that of the entire organism, whereas the weight of the kidney is only 0.6 per cent of the body weight. Their conclusions were that basal metabolism was increased in pregnancy and that it was due to the increase of renal activity.

In lactation the essentials for both the elaboration of milk and the maternal physiologic demands

9. Peralta Ramos, A., and Scheingart, M.: *Le Metabolisme Basal Dans la Grossesse*. *Gynec. et Obst.*, 15:333-339, May, 1927.

10. Krukenberg, H. (Bonn) and Alberts, H.: *Influence of Renal Activity on Basal Metabolism During Pregnancy*. *Zentralbl. f. Gynak.*, 54:3201-3206, Dec. 20, 1930.

of milk secretion must be met. The increase of the energy requirement of the mother during this period varies with the age and weight of the infant. A good average is 40 to 50 calories per pound for the infant, plus the mother's own requirement, plus a surplus necessary to secure good milk secretion.

EFFECT OF THE ACTIVITY OF ENDOCRINE GLANDS

The ductless glands produce secretions that are known to exert a marked influence over the energy metabolism of man.

Thyroid. The thyroid gland is certainly the one most intimately connected with changes in basal metabolic rate. Exophthalmic goiter,¹¹ known to all by the appearance of the eyes, sometimes called "pop-eyes," is a disease in which there is a hypersecretion of an enlarged thyroid gland. This hypersecretion increases the metabolic rate in proportion to the disturbance.

In overfunction of the thyroid gland, whether associated with diffuse disease of the gland (exophthalmic goiter) or with tumor of the gland (toxic adenoma), there may be a striking increase in the rate of metabolism, sometimes as much as 100 per cent increase. In certain other diseases, such as myxedema and cretinism, due to a hyposecretion of the thyroid, the basal metabolism is markedly lowered, so that it is sometimes 40 per cent below normal. For this reason the exact measurement of the basal metabolism has become significant in the diagnosis and management of thyroid disorder.

Adrenal. The suprarenals¹² also have a calorogenic influence in the body through the liberation of epinephrine. Both epinephrine and thyroxin accelerate the heat production in the body. Precise explanation of the nature of the effect remains to be developed.

Pituitary. In disease of the pituitary gland there seems to be no great uniformity as to the effect on metabolism. In Fröhlich's syndrome and in certain other conditions as yet little understood, a lowered rate may be encountered. More convincing has been the experimental evidence secured from hypophysectomized animals which showed a marked lowering of basal metabolism in the state of hypopituitarism. There is the possibility that the hormonal effects of the pituitary on heat production may be exercised indirectly through the thyroid.

An unusually significant contribution in this field has come from the surgical service of the Peter Bent Brigham Hospital in Boston. Cushing and

Davidoff¹³ have formulated the conclusion that acromegaly is a disease which bears the same relation to pituitary insufficiency (hypopituitarism) that exophthalmic goiter bears to myxedema (hypothyroidism). It is, in other words, an expression of hyperpituitarism just as exophthalmic goiter is of hyperthyroidism. Acromegaly is often accompanied by an elevated basal metabolic rate and the reverse condition of hypopituitarism by a subnormal rate. Acromegaly, furthermore, may be accompanied by a palpably enlarged thyroid and by symptoms suggesting thyrotoxicosis, to which the increased basal metabolic rate has generally been ascribed.

Fevers. It is not within the scope of this paper to consider different theories as to the causes of fever. There are many good reviews of the various metabolic phenomena.

When fever is at its height the basal metabolism is increased. The energy output increases with each degree of rise in temperature. Hence, the higher the temperature the greater the need for food. To an energy allowance suitable for a healthy person lying in bed, there must be added allowances for the rise in temperature, restlessness and perhaps also for a special toxic stimulation of energy expenditure due to the infection. As a result the total energy requirement in fever may be 30, 40 or 50 per cent higher than normal. In calculating a diet for a fever patient, we may need to increase the energy value of the food above that required for basal, 7 per cent for each degree of rise in temperature above normal. So a bedridden person, requiring 1800 calories in health, would require as much with fever as if he were doing fairly active work. This might increase his requirement to 2800 or 3000 calories per day. In certain instances, notably in typhoid fever, even this liberal number of calories may not be sufficient to keep the body from great loss of nitrogen. Such loss cannot be prevented by increasing the protein of the diet, however, but only by raising the calorie content per day.

The administration of food in fever calls for the exercise of skill and good judgment in deciding how far the patient's energy needs can be met when the alimentary tract is very sensitive. Overfeeding may be worse than underfeeding, and care must be exercised in selecting the food which can be taken most successfully.

In comparatively short infections, such as lobar pneumonia, it does not seem necessary or practical to give large amounts of food. In this disease ab-

11. Boothby, W. M.: Basal Metabolic Rate in Hyperthyroidism. *J.A.M.A.*, 77:252, July 23, 1921.

12. Acromegaly and Metabolism. Editorial, *J.A.M.A.*, 89: 30, July 2, 1927.

13. Cushing, H., and Davidoff, L. M.: Studies in Acromegaly; Disturbances of Carbohydrate Metabolism. *Arch. Int. Med.*, 39:751-779, June, 1927.

dominal distension is a serious complication but it is quite possible that this might be controlled if a suitable diet is devised.

Tuberculosis. When the tubercle bacillus gains a foothold in the human body, it proceeds not only to invade the organ upon which it encamps, lungs, kidney or whatever it may be, but it produces poisons which permeate the whole system, causing fever, loss of appetite and other bad conditions which result in the wasting so familiar in this dread disease.

Laboratory studies of the energy expenditure in tuberculosis indicate that the energy requirement is not raised greatly above the normal. The increase is largely dependent upon the amount of fever present. The total energy value of the diet must, therefore, be adapted to the individual patient, and should be just sufficient to maintain the body weight slightly above normal.

In forty cases of incipient, moderately advanced and far advanced tuberculosis McMahon and Klein¹⁴ studied the basal metabolism. With certain exceptions¹⁵ (inanition, cachexia), the more severe the disease the higher is the basal metabolic rate.

OVERWEIGHT AND UNDERWEIGHT

Obesity. In obesity the internal organs are working under a handicap. The muscles when clogged with fat become soft and flabby and the heart in particular suffers. The circulation of the blood is impeded, and this in turn makes the work of the weakening heart more difficult and the strain on the blood vessels greater. Liver, kidneys and pancreas all work at a disadvantage, and how long they can continue to function properly depends on their native endurance. There is no guarantee that a pancreas able to care for a 150 pound body can take equally good care of one of 300 pounds. Certain diseases have long been known to be associated with overweight. Diabetes is one so considered.

The overweight needs to learn how to get a balance between caloric intake of food and energy expenditure. Our present mode of living reduces exercise to a level incompatible with the combustion of a large number of calories in excess of the basal metabolism. In obesity the basal requirement per square meter of body surface is about the same as for a person of normal weight, but his total requirement is increased in proportion to his overweight.

Emaciation. The possible effects of deprivation

of food are being given more than merely academic interest. Starvation, partial or complete, is a condition that is sometimes enforced on the individual by circumstances that are beyond his immediate control. Disease is an example. Fasting may be indulged in by persons not only under medical prescription,¹⁶ but also on the voluntary basis of less professional motives.

The general features of inanition have long been known. There is a loss of weight which tends to be followed by a lowering of the basal metabolic rate as much as 20 to 40 per cent, if the deprivation of food is continued sufficiently. Prolonged under-nutrition leads to muscular inefficiency, lassitude and lowered capacity for effective work. When the deprivation of water is superimposed on the fast, the results are, as might be expected, far more drastic. Anhydremia is notably harmful. This is presumably due to the unusually rapid destruction of body protein and consequential rapid loss of body weight.

As a recent writer has stated,¹⁶ although there have been extensive studies of the metabolism of fasting men and animals, comparatively little has been written concerning alterations in the concentration of various chemical components of the blood. Today this is regarded as giving a more direct picture of some of the actual metabolic possibilities of the body.

Nephritis. No close relation was found between anatomic and functional lesions of the kidney and basal metabolism, nor between arterial hypertension, residual nitrogen of the blood serum and basal metabolism.¹⁷ In some cases of renal disease, accompanied by a decrease in the red corpuscles and the hemoglobin of the blood, there is a certain decrease in basal metabolism. In cases presenting urea in the blood and accompanied with hypertension the basal metabolism is usually increased. Basal metabolism cannot serve as a point of differentiation between the essential hypertension and hypertension due to renal disease, for in both cases the metabolism may be increased or may remain normal.

The German investigators, Broucker and Kempmann,¹⁸ say that in nephritis, if accompanied by hypertension caused by contracted kidney, the basal metabolism was considerably increased, in some instances as much as 55 per cent. All the work on uncomplicated nephritis fails to furnish conclusive evi-

14. McMahon, A., and Klein, H. A.: Basal Metabolism in Pulmonary Tuberculosis. J. Missouri M. A., 26:586-590, Dec., 1929.

15. Williamson, R.: Observations on Respiratory Exchange and Basal Metabolic Rate in Pulmonary Tuberculosis. Quart. J. M., 23:85-100, Oct., 1929.

16. Metabolic Consequences in Fasting. Editorial, J.A.M.A., 88:485, Feb. 12, 1927.

17. Sterling, S., et al.: Basal Metabolism and Renal Disease. Paris Med., 64:193, Sept. 10, 1927.

18. Broucker, W., and Kempmann, W.: Determination of Basal Metabolism in Hypertension. Munchen. med. Wchnschr., 77:8-10, Jan. 3, 1930.

dence that the total metabolism is changed. A basal metabolism examination of patients with renal disease has little diagnostic value, but it may furnish some indication for treatment.

Cardiovascular Diseases. In general, it seems that there is nothing in heart disease of itself that alters the metabolism, but the increased activity of the muscles of respiration causes an increased oxygen consumption.¹⁹ It is also possible that the increased work of the heart helps to raise the metabolism to a slight extent. On the other hand, we must not forget that patients with severe cardiac lesions lead sedentary lives and might, therefore, be expected to show a lowered metabolism.

It has been estimated that during exercise the volume of blood pumped by the heart may be three or more times greater than in the resting state, and the blood pressure may rise 50 per cent or more. The work of the heart may thus be increased five-fold. Such considerations make clearer why the physician is so often seriously concerned with the problem of muscular exertion in patients in whom the cardiac functions need cautious treatment.²⁰ The whole problem of management of heart disease seems to depend upon the relationship of the demands of total metabolism and the needed cardiac output, and the capacity of the organism to meet those demands.

Anemia. The term anemia is generally applied to a deficiency of the hemoglobin or red corpuscles of the circulating blood. The oxygen capacity of the blood is reduced, even when the patient is absolutely quiet. This deficiency places a physiologic burden upon the organism. Usually the patient is weak and is obliged to lead a sedentary life which has a tendency to lower metabolism.

In pernicious anemia, Suzman²¹ says, "the basal metabolism is influenced by the level of the red blood cells. In the cases showing subacute combined degeneration, the red blood cell counts were, on the whole, higher than in the group of patients with uncomplicated pernicious anemia." However, the red blood cell level cannot be considered the responsible factor, for diminution of basal metabolic rate occurs in patients with subacute combined degeneration of cord, at all levels of red blood cells. "Consideration is given to the possibility that the diminished basal metabolism, in cases presenting

subacute combined degeneration, may be the result of neuromuscular disability."

In reviewing the literature, it is difficult to obtain conclusive evidence as to the factors in primary or secondary anemia which influence the basal rate. Some show low and others an elevated metabolism, but they may be so changed from the normal because of other complications rather than the anemia. Tompkins et al.²² reported that the best evidence pointing toward an elevation of metabolism in anemia is the fall after transfusion.

Leukemia. Leukemia is characterized by a tremendous increase in the number of white corpuscles and an enormous enlargement of the spleen. The basal metabolism may be as high as in the severe types of exophthalmic goiter, although there seems to be no relationship between the two.

The study of the basal metabolism in thirty-one cases of chronic lymphatic leukemia leads Krantz and Riddle²³ to the following conclusions: The basal metabolic rate in this disease is elevated, when the leukemic process has progressed far enough to cause other than local symptoms. The rise in the basal metabolic rate is not closely related to the height of the leukocyte count, when a group of cases is considered. The elevation of the basal metabolic rate appears to be less stable than the leukocyte count and is more directly comparable with the patient's symptoms than with the white blood cell count. The presence of a considerable number of distinctly immature lymphocytes is usually associated with an increased energy exchange.

Diabetes. The importance of determining the total metabolism in diabetes has long been recognized, for there is perhaps no disease in which a well adjusted diet is so necessary. After many years of interesting discussion, we find now almost unanimous agreement with regard to basal metabolism in diabetes. In mild cases there is no change from the normal.²⁴ In severe cases the patient is almost always undernourished, and on this account shows a lower metabolism than normal. This lowering is usually in proportion to the degree of emaciation, and in extreme cases may be as much as 30 to 40 per cent below the average.

Allergy. Patients with bronchial asthma frequently have a subnormal basal metabolic rate.²⁵ This

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tendency seems to be more marked in patients with allergic eczema. It has been found that there is a higher incidence both of thyroid enlargement and of a family history of goiter in asthmatic patients than in the average population. This would seem to suggest that the lowered metabolic rate is due to a depressed thyroid functioning. Evidence is presented to show that in most instances the lowered thyroid functioning is probably an effect, not a cause of the allergic state.

Arthritis. Swaim and Spear²⁶ studied the basal metabolism in 200 cases of chronic arthritis. Thirty-nine per cent presented an abnormal metabolic rate, almost equally divided between plus and minus. Age of the patient, duration and activity of the disease apparently have no great effect on the metabolic rate in this group of cases.

Vrtiak and Jordan²⁷ seem to think that there is a tendency toward a minus metabolism of the hypertrophic type and a plus rate of the atrophic, though the differences are not especially clear cut and there are examples of each type showing plus and minus rates.

Pemberton²⁸ points out that chronic arthritis of either type tends to present, in the absence of fever, a slight lowering of basal metabolism. This lower metabolism is due apparently to the curtailment of the circulation to those tissues, especially the muscles, which have to do with the processes of oxidation. Another result of this curtailment of the blood circulation is a delay in the rate of removal of substances circulating in the blood stream. Glucose is an example of such a substance. Usually in chronic arthritis there is a well marked muscular atrophy, with lessened metabolism of glucose.

For these reasons, when glucose is fed in large amounts to patients with arthritis, there is brought about a so-called "lowered sugar tolerance." The mechanism of this lowered metabolism is not fully understood. Snyder and Traeger²⁹ believe they have shown that the lowered sugar tolerance accompanies exacerbations of the arthritic process. Pemberton attributes it to the circulatory differences.

Since total energy metabolism is influenced more by muscular work than any other one factor, generally the patient with arthritis does less work because of the pain experienced when performing it; therefore, total metabolism is decreased.

Nervous Disorders. Until recently textbooks of physiology have had little to say regarding the metabolism of the nervous system. One cannot penetrate far into the domain of muscle function before being brought face to face with the problems of energy exchange. We have shown that muscular activity is concerned with the production of work and heat; and such a process in turn involves the production of carbon dioxide and the utilization of oxygen. Nervous excitement and strenuous mental activity also may increase metabolism; but, as Mitchell³⁰ has pointed out, no measurements of this increase have effectively eliminated the muscular contractions that accompany nervous activity. It is certain that most of the increase in metabolism, if any, that occurs during mental work is caused by contractions of skeletal muscles. Under these conditions they are active in maintaining more or less rigid posture of the body. When complete muscular relaxation is maintained, all attempts to detect a rise in metabolism during mental work fail to yield decisive results.

The recent investigations by Holmes,³¹ at the University of Cambridge in England, indicate that the various types of tissue composing the central nervous system have different rates of oxygen consumption. The activity of the gray matter is in this respect far greater than that of white matter. In gray matter the metabolism is of a more intensive kind. Holmes believes there can no longer be doubt that the brain as a whole uses oxygen at a much greater rate than does peripheral nerve. However, the brain constitutes such a small portion of the total body weight that a small rise in its rate of metabolism would have little effect on the sum total of the entire body. Benedict and Benedict³² report that one-half of a peanut will yield enough energy to supply an hour of mental work.

Emotional states may cause a marked rise in body metabolism, but this may be due to accompanying muscular contractions or to a secretion of hormones which have a calorogenic influence. In an attempt to correlate basal metabolic processes with certain emotional states and their common psychomotor accompaniments, Henry³³ discovered that there is a definite relationship between basal metabolic processes and emotional states, regardless of the clinical type of personality disorder. Elated,

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27. Vrtiak, E. G., and Jordan, E. P.: *Clinical Study of Chronic Arthritis*. J.A.M.A., 94:863-867, March 22, 1930.

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33. Henry, G. W.: *Basal Metabolism and Emotional States*. J. Nerv. & Ment. Dis., 70:598-605, Dec., 1929.

overactive and overtalkative states are accompanied by acceleration of basal metabolic processes. Depressed, underactive and undertalkative states are accompanied by retardation of basal metabolic processes. Apprehensive, tense and agitated states usually imply an acceleration of basal metabolic processes, but this may be counteracted in some cases in which the feeling of depression is intense. Apathetic states are accompanied by a retardation in basal metabolic processes which is not as great, however, as that associated with feelings of depression.

Epilepsy. Studies, of which there are few in number, seem to indicate that during an epileptic attack a great increase in total metabolism takes place, but may soon return to normal or below when the seizure is over. Davis³⁴ says there is a distinct tendency for patients subject to epileptic seizures to have a lower basal metabolism than normal. The cause of this condition may be explained by the fact that during the convulsions, characteristic of the disease, excessive demands are made on the thyroid gland, resulting in an inadequate supply of thyroxin to the tissues.³⁵ Consequently, the reduced basal metabolism should be regarded as an effect rather than a cause of epilepsy and hence not a signal for thyroid therapy. Davis feels that this tendency to a lower basal rate would seem to warrant the use of pituitary therapy. Others do not agree as to its use.

Deficiency Diseases. In the present day consideration of the pathology of the various recognized deficiency disorders it is logical to inquire regarding possible metabolic disturbances as well as to investigate the consequent structural defects that characterize the disturbance due to lack of some essential food constituent. Studies in this field have not yet been productive of much convincing information. The investigation of rickets and related disorders has, of course, left no doubt that there are disturbances in the metabolism of the inorganic constituents of the skeletal structure. At the present time there is a tendency to broaden the scope of metabolic studies to consider the role not only of inorganic, but also organic constituents of the blood, the tissues and the excretions.³⁶ It is probable that this trend will be developed in the near future.

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35. Topper, A., and Mulier, H.: Basal Metabolism in Asthma and in Epilepsy. *Am. J. Dis. Child.*, 46:963-968, Nov. (Part 1), 1933.

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SUMMARY

1. In health as well as in disease the human organism must have fuel in the form of food to keep the life processes going.

2. Metabolism is the process by which energy is made available for the use of the organism.

3. Basal metabolism is the irreducible minimum of energy required to keep the body going.

4. The total energy exchange is influenced in both health and disease by muscular work, age, size and certain other factors.

5. Nutrition is an exact science as far as the energy requirement is concerned, in that a definite amount of work calls for a definite amount of energy in the form of food.

6. During pregnancy the energy requirement is increased gradually. There is usually no appreciable increase during the early months, while during the eighth and ninth month it may increase 20 per cent or more.

7. Lactation increases the energy requirement of the mother. The increased demand cannot be calculated in proportion to the caloric content of the milk secreted.

8. Basal metabolism is accelerated in hyperthyroidism, leukemia, fevers and in some instances in other diseases.

9. Hypothyroidism and myxedema are marked by a lowered energy requirement.

PERINEAL TESTICLE COMPLICATED BY ACUTE EPIDIDYMITIS

CASE REPORT

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J. T., male, age 24, single.

Chief complaint. Misplaced testicle.

The case was referred by a doctor who saw the patient and found the condition on physical examination for life insurance. No history of trauma or subjective symptoms noted, the condition having been present from birth. He has always been active in high school athletics and was admitted to the National Guard in Washington. He is able to ride a horse with no difficulty and has always been healthy. Past history is negative for serious illness, family history is negative.

Physical examination is essentially negative.

Urologic examination. The penis is normal. Right testicle normal in size and consistency. Vas and vessels are palpably normal. The left testicle is found beneath the skin and fascia of the perineum about two inches to the left of the midline and about two inches above the anus. The organ is freely movable upward almost to the upper part of the scrotum. There is no pain on palpation and movement (fig. 1). Vas and cord are felt extending upward over the pubis. Inguinal ring is normal, no hernia associated with the condition. The testicle is slightly atrophic and rather soft to the touch. Prostate is not abnormal; fluid expressed is negative for pus cells. Seminal vesicles were



Fig. 1. Shows testicle misplaced in perineum.

felt but not indurated on either side. Urine is clear and no albumin or sugar found. Operation was advised to place the testicle in the left side of scrotum but was refused, due to financial and other reasons.

No more was heard from the patient until four months later, at which time he came in with an acute neisserian infection which was self-treated for two weeks, after which he promptly developed an acute epididymitis of the ectopic testicle. The course of the complication was about as expected, with the exception that the epididymus was about three times normal size, and it so distended the space about the testicle that it looked as if it would rupture through the fascia and the skin of the perineum. The pain was very severe and the space for swelling so limited that it presented a problem in treatment. There was no comfortable position in which to lie, and the slightest movement of the left leg intensified the pain.

Conservative treatment was used, however, and in five days the swelling began to subside as well as the temperature which ranged from 99° to 103°. All usual treatment for epididymitis was instituted. The recovery was prompt and the epididymitis went slowly back to normal. However, it seemed that the testicle became smaller. Whether this was due to lack of space in which to swell, which encroached on the blood supply or not, I do not know. After the acute attack the local treatment was resumed and the patient continued on to cure with no more difficulty. The urethritis and prostatitis were rather resistant to treatment. The right epididymus remained normal throughout the course of the disease and the complication.

SUMMARY

This case is presented because of the rarity of the condition as seen after puberty. It is the only case found recorded of an inflammation of the epididymus in the ectopic organ.

Weinberger, in 1899, compiled 74 cases. Since then there have been 23 more cases of this condition as reported by Muschat. Thorek reports 84 up to 1925.

With regard to the occurrence of congenital ectopic testicle there are four varieties which are (1) perineal type, (2) interstitial type, (3) penile, (4) femoral, the last two varieties being extremely rare. About 60 per cent of these cases have been

reported with inguinal hernia associated. There is no evidence of that being present in this case. The more rigid nature of the perineum and muscle support provided, perhaps, a better immobilization than could have otherwise been placed, and no doubt materially aided the recovery from the acute inflammation.

The explanation of just how the testicle migrates past the scrotum into the perineum is not definitely accounted for. It may stop anywhere between the kidney and the scrotum. That the testicle moves downward between fascial planes may be the explanation as to why it becomes arrested somewhere between these planes, as there seems to be a definite pocket associated with this condition. It is undoubtedly tunica vaginalis which surrounds the organ, for hydrocele has been known to occur along with the condition.

The position of the testicle is certainly more or less fixed as was demonstrated very clearly in this case. Because of the anatomy of the region, there was very little space in which to swell. It is certain that this accounts for the severity of the pain and discomfort.

Ultimately the surgical procedure of choice in this condition as it now presents itself is orchidectomy. The liability to trauma and malignant change is always an unnecessary hazard which is not justifiable under the circumstance. The proper time to have corrected the condition was shortly before puberty, at which time the testicle could have been placed and anchored in the scrotum by one of several methods of procedure.

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RAPIDLY DEVELOPING CATARACT AFTER DINITROPHENOL. W. W. Boardman, San Francisco (*Journal A. M. A.*, July 13, 1935), presents six cases of rapidly developing cataract after the use of dinitrophenol in women aged from 36 to 50. He calls attention to the fact that as the occurrence of cataract at this age is extremely rare and the only common factor in these cases has been the use of dinitrophenol, it would certainly seem that, until the question of the relationship between the dinitrophenol and the rapidly developing cataracts in young women is settled, the administration of the drug is definitely contraindicated.

USE OF PLACARD IN COMMUNICABLE DISEASE CONTROL

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An inquiry has been directed to health officers of a number of large cities in this country relative to whether or not placards are employed in their respective cities as a means of controlling certain of the more common communicable diseases. Nineteen replies were received and the information secured is perhaps of some interest to practicing physicians as well as to those engaged in public health administration.

The information secured concerning the extent to which the placard is employed as a means of managing certain of the more common communicable diseases in nineteen large cities is summarized in Table 1. The data presented seem to indicate considerable uniformity of practice with respect to use of placards in five of the so-called major communicable diseases, that is, smallpox, scarlet fever, diphtheria, poliomyelitis and meningococcus meningitis. It will be noted that with the exception of Washington, D. C., and Albany, New York, neither one of which placards for poliomyelitis or meningococcus meningitis, and of Providence, Rhode Island, which does not placard for the latter disease, all the cities for which information has been secured make use of the placard in the management of these infections.

The practice of these nineteen cities varies greatly, however, with respect to use of the placard for typhoid fever and the so-called minor communicable diseases, that is, measles, whooping cough, chickenpox and mumps. It appears that in general about half of the cities under consideration use placards in connection with the management of these infections.

These findings may be interpreted as indicating that health authorities in the nineteen cities under consideration rather uniformly look upon the placard as a useful means of restraint when employed in connection with most major communicable diseases as well as a warning to parents of susceptible children. There is, however, a lack of uniformity among these cities with respect to the use of placards for cases of minor communicable diseases, a fact which perhaps indicates a tendency to dispense with this procedure as a means of dealing with measles, whooping cough, chickenpox and mumps.

The weakness of the argument that the placard serves as a valuable warning to parents of suscept-

City and Population XX	Typhoid Fever	Smallpox	Scarlet Fever	Diphtheria	Poliomyelitis	Meningococcus Meningitis	German Measles	Whooping Cough	Chickenpox	Measles	Mumps
New York, N. Y. 7,154,300	0	X	*	*	*	0	0	0	0	0	0
Chicago, Ill. 3,490,700	*	X	*	*	*	*	*	0	*	*	0
Detroit, Mich. 1,666,100	*	*	*	*	*	*	*	0	*	0	0
Cleveland, Ohio 918,400	*	*	*	*	*	*	*	*	*	*	*
St. Louis, Mo. 830,300	*	*	*	*	*	*	0	0	0	0	0
Baltimore, Md. 817,100	0	X	*	*	*	*	*	*	*	0	*
Pittsburgh, Pa. 678,500	*	*	*	*	*	*	*	*	*	*	*
San Francisco, Cal. 656,200	*	*	*	*	*	*	0	0	0	0	0
Milwaukee, Wis. 599,100	*	*	*	*	*	*	*	*	*	*	*
Buffalo, N. Y. 584,400	0	*	*	*	*	*	0	0	0	0	0
Washington, D. C. 495,000	0	*	*	*	0	0	0	0	0	0	0
Minneapolis, Minn. 477,700	*	*	*	*	*	*	0	0	0	0	0
Cincinnati, Ohio 460,100	0	*	*	*	*	*	0	0	*	0	0
Newark, N. J. 447,000	*	*	*	*	*	*	*	0	0	0	0
Seattle, Wash. 374,100	*	*	*	*	*	*	*	*	*	*	*
Indianapolis, Ind. 372,100	0	*	*	*	*	*	*	*	*	*	*
Providence, R. I. 255,600	0	*	*	*	*	0	*	0	0	0	0
Albany, N. Y. 129,800	0	X	*	*	0	0	0	0	0	0	0
Norfolk, Va. 129,710	*	*	*	*	*	*	0	0	*	0	0

TABLE 1—Status of Nineteen Cities with Respect to Use of Placards in Communicable Disease Control.

* Placard employed.

0 Placard not employed.

X Placard unnecessary; all cases hospitalized.

XX Population estimates as of July 1, 1933, furnished by Department of Commerce, Bureau of The Census.

ible children lies in the fact that it presupposes early and complete reporting of cases. There is bound, however, to be a considerable lapse between the time a case becomes infectious and the time a placard can be posted following receipt of a report. In measles and whooping cough, for example, the disease is regarded as probably most highly infectious during the period of invasion and before a definite diagnosis is possible. In cases of chickenpox and mumps the disease may not at first impress parents as being sufficiently severe to warrant promptly calling a physician.

Aside from these considerations, experience def-

initely teaches that outbreaks of these diseases among urban populations may not ordinarily be prevented and that attention should rather be devoted to attempting to guard against deaths insofar as measles and whooping cough are concerned. The danger of death in chickenpox is extremely small, hence from a public health point of view its primary importance is its differentiation from smallpox, especially in cases where adults are attacked. Mumps, aside from its tendency to produce severe complications when it occurs in persons of adolescent age or over, is relatively unimportant, the case fatality being extremely low. The New York State Health Department has gone so far as to remove mumps from its list of reportable diseases.

Deaths from measles and whooping cough tend to be concentrated in the younger age groups, particularly in children under three years of age. It has been suggested that the most promising means of attempting to prevent these deaths is primarily educational in nature rather than restrictive. Parents must understand that children under three should be guarded from contracting these two diseases if possible, and that when attacked greatest safety lies in good medical attention secured early, good home nursing care and strict isolation. Isolation of the patient is not demanded primarily as a means of preventing spread of the diseases to others but rather as a safeguard against others with coughs and colds bringing secondary infections to the patient.

It is suggested that employment of placards in the minor communicable diseases serves no useful purpose either as a means of preventing or stopping outbreaks or as an effective warning to parents of young children. Experience indicates that under urban conditions outbreaks of these infections may not ordinarily be prevented by this or any other means now known. The only warning for parents of young children that can be effective is one that comes early in an outbreak and is maintained throughout its duration. Such a warning should consist of voluminous general and special types of publicity designed to inform parents of very young children regarding the necessary precautions.

It is also suggested that the use of placards interferes with achievement of these aims. The placard has perhaps become more or less associated in the public mind with imposition of burdensome

and unwarranted restrictions which means that an appreciable number of cases remains unreported. It thus becomes impossible by means of health department personnel to convey to the families of these unreported cases the message regarded as so important, that is, the protection and care of the child under three.

Perhaps some municipal health officers, who still employ placards in the management of minor communicable diseases, wish they felt it would be safe to abandon the procedure. Such changes of policy may not lightly be adopted lest the health officer be deemed guilty of failure to do all in his power to prevent disease. The way for such changes must ordinarily be prepared very carefully in order to prevent health department procedures from conflicting with existing ordinances and in order to avoid a certain amount of protest.

SUMMARY

1. Certain large cities uniformly make use of placards in managing reported cases of major communicable diseases, with the exception of typhoid fever.

2. About half of the cities for which information is available do not use placards in minor communicable diseases.

3. Health department emphasis in connection with minor communicable diseases should largely be transferred from attempts in the direction of preventing or limiting the spread of outbreaks which experience teaches is impossible under urban conditions to prevention of deaths due to these causes, an aim which may be possible of achievement.

4. Measles and whooping cough mortality is concentrated in the younger age groups, particularly children under three. A program of education rather than restriction is regarded as offering greater promise for prevention of these deaths.

5. The use of placards in cases of minor communicable diseases constitutes an insufficiently effective warning to parents of susceptible children, does not serve to prevent or limit outbreaks and may tend to discourage reporting of cases. Placards may, therefore, be regarded as tending to interfere with the program of family education by health department personnel which should be aimed at prevention of deaths due to measles and whooping cough.

MORPHINE ADDICTION

ITS TREATMENT BY AUTOGENOUS SERUM.

MODINOS' PHLYCTENAR METHOD.

PRELIMINARY REPORT

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About two years ago our attention was first called to Modinos' phlyctenar method for the treatment of morphine addiction.¹ Being somewhat skeptical of the remarkable results claimed, a thorough search of medical literature was made for confirmatory reports on the use of this method.

As early as 1930 Reddish² had tried the method and reported ten cases with striking results. Huizenga³ also reported twelve cases with satisfying results. With these encouraging reports at hand, we decided to try the Modinos' phlyctenar method as modified by Hong and Sioe.⁴ In seven cases there were six cures and one relapse.

The results were good but many disadvantages were found, of which the following were outstanding: (1) In obtaining blisters with cantharides plasters a great deal of pain is occasioned. (2) The blisters give rise to disfiguring scars. (3) The amount of serum obtained in the blisters is uncertain, making it difficult to increase the dosage as desired. (4) There is danger of infection in the blistered areas.

Confronted with these disadvantages and realizing that blood serum might serve equally well, we decided to try autogenous serum from the patient's venous blood. Soon after giving the patient his usual large dose of morphine several ounces of blood were withdrawn and centrifuged. The resulting serum was kept in an ice box, checked by culture every second day and used as desired. A series of five cases of morphine addiction was treated by this method with four complete and one incomplete cure. One typical case is here reported.

Mrs. G., age 53, has been using morphine for seventeen years. Daily requirement, twelve to fifteen grains hypo-

dermically. On entering the hospital for treatment she was given fifteen grains of morphine sulphate. About 150 cc. of serum was prepared from her blood. The first serum injection (5 cc.) was given subcutaneously the next morning. Subsequent injections and morphine reduction record is tabulated herewith:

Date	Morphine Sulphate gr.	Serum cc.
June 19.....	15	5.0
June 20.....	6	5.8
June 21.....	3 1/4	5.8
June 22.....	3	7.0
June 23.....	4 1/2	5.6
June 24.....	3 3/4	5.0
June 25.....	3 1/8	10.0
June 26.....	2 3/4	5.0
June 27.....	2 3/4	5.0
June 28.....	1 3/8	6.0
June 29.....	3	7.0
June 30.....	2 1/4	4.4
July 1.....	2 3/8	3.8
July 2.....	2 1/8	6.0
July 3.....	1 3/8	6.2
July 4.....	1 1/16	8.0
July 5.....	1 1/16	5.2
July 6.....	1 1/16	5.8
July 7.....	1 1/16	5.8
July 8.....	9/16	6.2
July 9.....	8/16	5.0
July 10.....	8/16	5.0
July 11.....	3/8	4.0
July 12.....	1/4	5.0
July 13.....	1/8	5.2
July 14.....	1/16	5.0
July 15.....	0	5.0
July 16.....	0	4.8
July 17.....	0	5.0
July 18.....	0	5.0
July 19.....	0	4.8
July 20.....	0	7.5
July 21.....	0	3.0
July 22.....	0	3.0
July 23.....	0	0.0
July 24.....	0	3.0
July 25.....	0	0.0
July 26.....	0	3.0

The following clinical observations were noted.

1. The patient develops a distaste for morphine after several injections of the serum.

2. Hypersensitivity to morphine is produced, which is manifested by: (a) cutaneous reaction to intradermal morphine injection even in dilutions of from one to one thousand to one to one million, being very similar to the allergic reaction to foreign proteins; (b) condition of moderate shock with palpitation, "floating sensations" in the epigastrium, perspiration and lowered blood pressure, when one-tenth to one-hundredth of the former accustomed dosage was given hypodermically.

3. With surprisingly little discomfort the patient is cured of the morphine habit.

301-2 Gordon Building.

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NORTHWEST MEDICINE

The Journal of the State Medical Associations of
Oregon, Washington and Idaho

Devoted to the Interests of the Medical Profession
of the Pacific Northwest

Editorial Office, 543 Stimson Building, Seattle, Wash.

AUGUST, 1935

EDITORIAL

THE EVERETT MEETING

In the July issue of this journal appeared the tentative program of the Everett meeting of Washington State Medical Association, August 12-14. It was stated that Dr. Edward B. Shaw of San Francisco would speak on acute anterior poliomyelitis. It should have added that he is chief of staff of the Children's Hospital, San Francisco. Mention was also made of the golf tournament and some details concerning it applicable to Monday which will be devoted especially to this all absorbing game.

At the noon hour on Tuesday, a luncheon will be held, to which every visiting doctor is invited. The Washington State Medical Service Bureau will be featured at this occasion. Every physician of the state should be interested in learning about this organization and its administration. To the luncheon on Wednesday noon all members are also invited, when the Public Health League will be featured. The program committee considers that these two subsidiary organizations are of such importance that as many as possible should attend and participate, if they choose, in the discussions concerning them. Consideration of these matters will take the place of the round table discussions at first provided for these hours.

Following the dinner Tuesday evening, Dr. J. A. Pettit of Portland, past trustee of American Medical Association, will give an illustrated lecture on the work of the Committee of Pharmacology and Chemistry. This Committee has had a very active part in shaping the practice of medicine by reason of its many investigations of drugs and preparations used by the profession. On Wednesday morning at 8:30 there will be two talking movies, continuing until the hour for the regular program. One is a two-reel picture on Child Behaviour, while the other is a six-reel picture of the laparotrachelotomy operation by DeLee.

While all sessions of the meeting will be held in the Masonic Temple, a registration desk will be located at the Monte Christo Hotel for Sunday and Monday registrations. During this period and

the rest of the meeting, registration can also be made at the Masonic Temple. There will be a no-host dinner at Monte Christo Hotel Sunday evening, an informal get-together meeting for those who happen to be in the city. The trustees of the association will meet at the hotel Sunday evening following the dinner. Snohomish County Medical Society desires a large attendance at the dinner dance which will be informal.

The Woman's Auxiliary to Washington State Medical Association will hold its fourth annual meeting at the same time, convening at Masonic Temple. An extensive program has been prepared which is featured for the same period as the state association meeting. Besides a series of interesting addresses, various social events and varied entertainment are scheduled which will command the interest and attention of all doctors' wives who may be present.

A large attendance of the profession of the state is desired. Many matters will be presented of vital interest which will affect every practitioner of the organization. Committees have been at work during the past year preparing matters to be presented at this meeting in which every one should have an interest. In addition to these matters a scientific program has been arranged which will command the attention of all in attendance. A cordial invitation is extended to physicians in adjacent states with the hope that a goodly number may attend this meeting.

OREGON MEETING AT GEARHART

The sixty-first annual meeting of Oregon State Medical Society will be held at Gearhart on the seacoast, September 19-21, with the Clatsop County Medical Society as host. The meeting was originally scheduled to be held one week earlier, but the dates have been changed at the request of numerous Eastern Oregon members in order to avoid conflict in dates with "The Pendleton Roundup." The largest gathering in the history of the society is anticipated because of the unusual opportunity offered the membership to combine three enjoyable days of postgraduate study with the wide variety of recreation available at this well-known beach resort.

Headquarters for the meeting will be Hotel Gearhart, which is located directly on the beach. The hotel, which is widely famed for its convention facilities, will be completely available to the Society during the three days of the meeting. Scientific and business sessions, as well as breakfast

meetings of the House of Delegates and the annual banquet, will be held here. The entire lobby has been set aside for the Scientific Exhibit and the Technical Exhibit.

Several eminent guest speakers will appear on the program, including Dr. Hans Lisser of San Francisco, Clinical Professor of Medicine at the University of California Medical School, and Dr. Hubbard T. Buckner of Seattle. Dr. Lisser will present a paper on "Pituitary-Adrenal Relationships," as well as a lantern slide clinic of endocrine disorders. Dr. Buckner will offer two papers, one entitled "Treatment of Supracondyloid Fractures of the Elbow," and the second, "Treatment of Fractures of the Spine."

A joint luncheon meeting of the local service clubs is being planned by the Clatsop County Medical Society for Friday, September 20, at Astoria. One of the guest speakers will probably address this meeting on a subject of timely interest to the lay public.

The ninth annual Oregon Medical Golf Tournament will be held on the attractive course of Hotel Gearhart. Other features of the meeting will be the breakfast meetings of the House of Delegates on Thursday, Friday and Saturday mornings, the annual banquet on Friday evening, at which the annual address of the President will be delivered, and the business meeting and election of officers on Saturday morning.

The Woman's Auxiliary will hold its annual meeting at the same time. Headquarters for the Auxiliary will be located at "The Ocean House." Visiting ladies will find much of interest in the annual reports of Auxiliary activities as well as ample diversion in the form of teas, luncheons, golf and beach parties.

The scientific and business sessions of the Society and Auxiliary will terminate on Saturday noon, leaving the afternoon open for the golf tournament and the enjoyment of the many attractions offered by a week-end at this splendid beach resort. The complete program of the meeting will be published in next month's issue.

THE IDAHO PROGRAM

The annual meeting of Idaho State Medical Association, which will be held in Boise at the Owyhee Hotel, September 9-13, will present some novel features which have not hitherto been presented by this organization. Instead of having a program with papers by members of the state association, that week will be devoted to a series of lectures sched-

uled for morning and afternoon of each of these days.

The lecturers, all from the faculty of Northwestern University Medical School, are as follows: Lathan A. Crandall, Jr., Associate professor of Physiology and Pharmacology; William H. Holmes, Associate Professor of Medicine; John A. Wolfer, Associate Professor of Surgery; George H. Gardner, Assistant Professor of Gynecology; William R. Cubbins, Associate Professor of Surgery. Each of these speakers will also give an address in a series of lay lectures.

In addition to this scientific program, there will be the annual banquet, the annual golf tournament, a dinner-dance for members and their wives, and entertainment for the ladies throughout the five days of the meeting. The registration fee for the complete course will be \$5.

Idaho State Medical Association extends a cordial invitation to the medical profession of the Pacific Northwest to attend this course of lectures and enjoy the hospitality and friendship of the doctors of this state. Those expecting to attend are requested to make hotel reservations as early as possible. Dr. Arthur C. Jones of Boise is chairman of the Program Committee.

PROGRAM OF LECTURES

MONDAY, SEPTEMBER 9

Forenoon

- 9:00-10:00 Lathan A. Crandall, Jr. Physiology of the Heart: The Conduction Mechanism of the Heart. Control of Heart Rate (reflexes by way of vagus and sympathetic). Carotid Sinus. Regulation of Cardiac Output. Electrocardiogram. Physiologic Applications to the Arrhythmias.
- 10:00-11:00 William H. Holmes. Common Forms of Cardiac Disease: Their Recognition and Treatment.
- 11:00-12:00 John A. Wolfer. Preoperative Preparation of the Patient.

Afternoon

- 2:00-3:00 William R. Cubbins. Fractures of the Femur: Types and Treatment.
- 3:00-4:00 George H. Gardner. The Gynecologic Patient Presents Herself: Taking of Histories. Relation of Pelvic Symptoms to General Condition. Methods of Examination.
- 4:00-5:00 Round Table Discussion.

TUESDAY, SEPTEMBER 10

Forenoon

- 9:00-10:00 Lathan A. Crandall, Jr. Response of the Body to Wounds and Infection: Fever. The Blood and Reticuloendothelial System. Immunity.
- 10:00-11:00 John A. Wolfer. Wounds Including Burns: Clean and Infected. Process of Repair. Classification. Treatment.
- 11:00-12:00 William R. Cubbins. Compound Fractures, Including Osteomyelitis.

Afternoon

- 2:00-3:00 George H. Gardner. Pelvic Infections: Etiology. Diagnosis and Treatment. Prevention.
- 3:00-4:00 William H. Holmes. Pneumonia: Types, Diagnosis and Management.
- 4:00-5:00 Round Table Discussion.

WEDNESDAY, SEPTEMBER 11

Forenoon

- 9:00-10:00 Lathan A. Crandall, Jr. Recent Advances in Physiology of the Stomach, Small and Large Intestines: Applications to Ulcer, Pylorospasm, Intestinal Obstruction, Spastic Colon, Flatulence and Constipation.
- 10:00-11:00 Dr. William H. Holmes. Medical Management of Peptic Ulcer.
- 11:00-12:00 John A. Wolfer. Surgical Management of Peptic Ulcer.

Afternoon

- 2:00-3:00 George H. Gardner. The Unhealthy Cervix: Differential Diagnosis and Treatment.
- 3:00-4:00 William R. Cubbins. Knee Joint.
- 4:00-5:00 Round Table Discussion.

THURSDAY, SEPTEMBER 12

Forenoon

- 9:00-10:00 Lathan A. Crandall, Jr. Physiology of the Liver: Recent Advances in Role of the Liver in Metabolism of Carbohydrate, Fat and Protein, and in Regulation of Body Fluids, Emphasis on Liver Function. Tests and Significance of Physiology for Treatment of Hepatic Disease.
- 10:00-11:00 John A. Wolfer. Cholecystitis: Acute and Chronic. With and Without Stones. Etiology, Symptoms, Diagnosis and Treatment.
- 11:00-12:00 William H. Holmes. Recognition and Treatment of the Anemias.

Afternoon

- 2:00-3:00 George H. Gardner. Uterine Bleeding: Significance. Differential Diagnosis and Treatment.
- 3:00-4:00 William R. Cubbins. Fractures of Leg, Including Ankle and Foot.
- 4:00-5:00 Round Table Discussion.

FRIDAY, SEPTEMBER 13

Forenoon

- 9:00-10:00 Lathan A. Crandall, Jr. Glands of Internal Secretion. Emphasizing Recent Investigations on Hormones of Pituitary, Ovaries, Testicles, Adrenals and Hormones. Regulating Motility and Secretion of Gastrointestinal Tract.
- 10:00-11:00 William H. Holmes. Practical Management of the Diabetic Patient.
- 11:00-12:00 George H. Gardner. Newer Methods of Diagnosis and Treatment: Rubin Test. Aschheim-Zondek Test. Schillar Test. Endocrine Therapy. Colposcope. Office Treatments. Biopsy. Uses of X-ray and Radium.

Afternoon

- 2:00-3:00 William R. Cubbins. Skull Fractures.
- 3:00-4:00 John A. Wolfer. Significance of Postoperative Symptoms: Recognition of Postoperative Complications and Sequelae.
- 4:00-5:00 Round Table Discussion.

LECTURES AT LAY MEETING

1. Lathan A. Crandall, Jr. Behind the Scenes of Medical Science.
2. William R. Cubbins. The Layman's Duty to the Injured.
3. William H. Holmes. Diet and Disease.
4. John A. Wolfer. The Nature of Cancer.

SPECIAL LECTURES FOR LADIES

George H. Gardner. Why Menstruation?

MEDICAL NOTES

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission has announced open competitive examinations as follows:

MATERNAL AND CHILD HEALTH SPECIALISTS

Applications for a number of specialist positions in maternal and child health work must be on file with the United States Civil Service Commission, Washington, D. C., not later than August 19, 1935.

The employment will be in the Children's Bureau, Department of Labor. Optional subjects are: Pediatrics, obstetrics, orthopedics and general (maternal and child health). The entrance salaries range from \$2,600 a year to \$5,600 a year, less a deduction of $3\frac{1}{2}$ per cent toward a retirement annuity.

Applicants must have been graduated from a medical school of recognized standing with the degree of M.D. and must have served one year of internship. In addition, certain experience is required.

Full information may be obtained from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city which has a post office of the first or the second class, or from the United States Civil Service Commission, Washington, D. C.

OREGON

AMERICAN MEDICAL ASSOCIATION TRUSTEE. At the recent annual meeting of the House of Delegates of the American Medical Association Ralph A. Fenton of Portland was elected to the Board of Trustees. This is a notable distinction and an office of responsibility. Dr. Fenton is the sole trustee not only of the Pacific Coast, but west of the Rocky Mountains. His term of office will expire in 1940. The profession of the Pacific Northwest is honored by having one of its members elected to this important office.

CONSTRUCTION OF HOSPITAL UNIT. The county planning committee at Roseburg has approved plans proposed by the county court for the construction of a hospital unit at the county home which will be a fireproof building to cost about \$7500. It is expected this will be constructed jointly by the county and with funds provided through the SERA. This institution will compensate for funds now used for treating patients in other institutions.

H. H. THOMAS has located for practice at North Bend, where he will be associated with R. H. Mast. After graduating from University of Iowa Medical School, he served an internship at Anker Hospital, St. Paul, and for the past year has been connected with that institution.

ROCKEFELLER FOUNDATION FELLOWSHIP. C. I. Drummond of Medford, county health officer, has received a Rockefeller fellowship in the International Health Division of New York. This provides for a year's postgraduate course of study at Harvard Medical School.

LAWRENCE E. SKINNER, recently of Chicago, has located for practice at Springfield, where he will be associated with Milton V. Walker. He is a graduate of University of Chicago School of Medicine and has recently served as interne in a hospital of that city.

HERBERT H. THOMAS of Mason City, Ia., has located for practice at Myrtle Point, where he will be associated with R. Harrison Mast. He is a recent graduate of University of Iowa Medical School.



H. H. HATTERY, who has practiced for the past eight years in Los Angeles, Calif., has located at Pendleton, where he formerly practiced for fifteen years.

RUSSELL BAKER, who has recently finished internship at Multnomah and Doernbecher hospitals, Portland, has been appointed chief surgeon of the engineers at Bonneville dam.

EARLE R. NORRIS, who has practiced for some time at Long Creek, has moved to John Day, where he will be located for future practice.

WASHINGTON

SUCCESSFUL POSTGRADUATE COURSE. The course of graduate lectures, sponsored by University of Washington at Seattle last month, was one of the most successful in its history, having a registration of about 240 physicians from Washington and adjacent states. After the morning lectures clinics were held by local members of the profession at King County Hospital each afternoon which were always attended by a large audience. The group of lecturers were happily selected, offering individual personal attractions in addition to the subjects which they presented. Dr. Oliver H. P. Pepper of University of Pennsylvania made a most pleasing impression both professionally and by his personal qualities. Dr. P. J. Hanzlik of Stanford University continued the impression established on previous occasions when he has presented to Seattle audiences the latest progress in pharmacology and drugs. Dr. R. S. Ferguson of Cornell University Medical School, New York, demonstrated not only his qualifications in the field of urology, but the possession of a literary style most pleasing to his auditors. Dr. Arthur E. Hertzler of Halstead, Kansas, exhibited a breezy, informal personality quite in contrast to the style of the ordinary lecturer. He delighted in discarding many accepted, traditional, orthodox forms of practice, at the same time asserting favorable results attained in spite of many heterodox procedures. This course of lectures will be remembered as one of unusual interest.

SITE FOR U. S. PSYCHOPATHIC HOSPITAL SELECTED. For a long time there have been many rumors concerning the location of the government psychopathic hospital in the Northwest. It has finally been determined that this important institution will be located near Bellingham on what is known as the Larrabee tract of 720 acres, three miles north of that city. The amount appropriated for the hospital is \$2,322,000. Of this some \$100,000 will be utilized for clearing the land and the balance for construction of the institution. It is stated that additional appropriations will later be made for the completion of equipment and other accessories, bringing the total expenditure to about \$4,000,000. It is stated the annual payroll for the institution will be in excess of \$200,000. The location is said to be ideal for this purpose, effectively meeting the requirements demanded by the FERA with Harry L. Hopkins at its head which has been in full control of this enterprise.

PROPOSED COUNTY HOSPITAL. It is reported that the county commissioners of Skagit county are considering the purchase of Burlington General Hospital for use as a county institution. This is a general hospital, owned by Mrs. Josephine Scott. It is claimed that the expenditures of the county for hospital care would warrant the investment in this institution.

HOSPITAL FOR FORESTRY SERVICE. A small hospital is to be constructed near Signal Peak headquarters of the Yakima

Indian forestry service to care for emergency cases from reforestation work. It will contain seven beds with provision for doctors' offices. It will be of log construction to correspond with other buildings of the group.

HOSPITAL REOPENED. Longview General Hospital, which was recently reported to have been closed, has been reopened, having been leased to Mr. K. B. Palmer of Tacoma as business manager. A new superintendent has been engaged, coming from Minneapolis to occupy this position.

ADDITION TO HOSPITAL. Under the appropriation of the Public Works Program to be carried out at Puget Sound Navy Yard, Bremerton, the U. S. Naval Hospital in that city will receive improvements at an expenditure of \$28,000. A utility building with accessories will be constructed.

NEW COUNTY HEALTH OFFICER. Hinton D. Jonez of Tacoma has been appointed Pierce County health officer for a two-year term. He served in the same capacity several years ago. He succeeds James Egan who has occupied this office during the past two years.

PUBLIC HEALTH MEETING. On July 10 the Tacoma Public Health Council held a special meeting at Tacoma Hotel, where Dr. Reginald M. Atwater of New York, executive secretary of American Public Health Association, delivered an address before a large audience.

PRACTICE RESUMED. Caspar W. Sharples of Seattle, who has been disabled for several months by serious illness, has resumed practice. This is a satisfaction not only to patients and many medical friends but also to the State Medical Association, of which he is an important official.

J. ELBERT HADDON, a native of Bremerton and a recent graduate of University of Oregon Medical School, served as interne at Seattle General Hospital. He has located for practice in Bremerton, where he will be associated with John P. and Ray L. Schutt.

M. J. SPIEGEL has located for practice at Colfax. After graduating from the Medical Department of the University of Illinois, he served an internship at Sacred Heart Hospital, Spokane. He served there as assistant county physician during the past two years.

APPOINTED COUNTY HEALTH OFFICER. George A. LeCompte of Shelton has been appointed health officer by the board of county commissioners. He will succeed Dr. Beach who has served in this capacity for the past year.

ASSISTANT HEALTH OFFICER. Max Wright of Spokane, who has served as assistant city health officer, has resigned from that office and been appointed assistant county health officer.

RALPH BROWN, who has recently completed an internship at Swedish Hospital, Seattle, has located for practice at Olympia. He will be associated in practice with Dr. Bridgeford.

G. RITTER SMITH, who for the past eight years has been in charge of the state hospital for the insane at Reno, Nev., has located in Seattle, where he will specialize in nervous and mental diseases. He practiced in this city about twenty years ago.

B. L. PHILIPS, who has practiced for the past three years at Pullman, has located at Colton. He has served for some time as city health officer, his resignation being July 1.

L. N. ADAMS of Spokane has been appointed assistant city health officer. He is a recent graduate of Harvard University Medical School.

IDAHO PANHANDLE MEDICAL ASSOCIATION

On July 15 a heart clinic was held at Spirit Lake, under the auspices of Kootenai County Medical Society, which was attended by doctors from all over the Panhandle of Idaho. George Anderson of Spokane conducted the clinic, assisted by Arthur Betts in the interpretation of radiograms. The clinic was held at the Spirit Lake hospital and many interesting cases were shown.

Following the clinic the visiting doctors were entertained by D. R. Lewis, president of Spokane County Medical Society, at his summer home. Swimming and water sports were the order of the day. At 6 p.m. a banquet was held at Spirit Lake hotel. About twenty sat down to table. Following the banquet a session was held at Dr. Lewis' home and an informal discussion led to the formation of the Panhandle Medical Association. Officers elected were John Schori of Spirit Lake, President, and Alexander Barclay of Coeur d'Alene, Secretary-Treasurer.

The Association has a potential membership of approximately seventy-five. Representatives from Bonner, Boundary, Shoshone, Benewah and Kootenai counties numbering about twenty were present and formed the nucleus of the organization. Any member of the State Association who is in good standing in his own county organization is eligible for membership. The dues are nominal and the objects of the organization are professional and social, with some emphasis on the "social." Meetings will be held once or more monthly and it is expected that a feeling of goodfellowship, which has already been engendered, will bloom and bear fruit among the profession over a wide area.

PROPOSED HOSPITAL ENLARGEMENT. The board of county commissioners of Power county are considering the construction and enlargement of Schiltz Memorial Hospital at American Falls. For some time the hospital has been much crowded and more space is needed. The board's plan is to enlarge each wing of the structure. It is anticipated that funds may be obtained from the PWA.

NEW HOSPITAL PLANNED. Tentative plans have been pro-

vided for a brick and stone hospital of thirty to thirty-five beds to be constructed on the Indian reservation at Fort Hall. Present hospital accommodations are crowded and inadequate. The construction is contemplated upon aid to be obtained from PWA funds.

UNIVERSITY INFIRMARY. An infirmary will be constructed at University of Idaho at Moscow at a cost of \$50,000. This sum was appropriated by the legislature, but was not increased by allocation from federal funds as hoped for.

W. W. BECK has located for practice at Rexburg, where he will be associated with H. B. Rigby. Having recently graduated from the University of Pennsylvania Medical School, he served internship at Alameda County Hospital, Oakland, Calif.

KEITH M. CLISBY, who has recently practiced in Portland, has located in Boise for his future home. He will be associated in practice with Ralph Falk and Richard Simonton.

EUGENE SCHREIBER, who has practiced in Georgia for more than twenty years, has located in Boise. He will specialize in pediatrics.

GEORGE E. DAVIS, who has practiced for several years at Pescadero, Calif., has located for the future at Parma.

OBITUARIES

DR. HUBERT W. WILSON of Twin Falls, Ida., died June 24 from disease of the heart, aged 64 years. He was born at LaPorte, Ind., in 1870. He obtained his medical degree from University of Michigan in 1892. He located at Michigan City, Ind., where he practiced for seventeen years until moving to Idaho in 1909. Owing to his personality and professional ability he became one of the prominent practitioners of his city. He served as a member of Twin Falls school board from 1913 to 1916. He was president of Idaho State Medical Association in 1921. He served as captain during the World War and was on the Mexican border, where he received a severe wound. On account of his prominence both in medical and civil affairs, his death is recognized as a great loss to the community.

STATE DEPARTMENTS OREGON

NEWLY ELECTED OFFICIALS

Portland, Ore., July 22, 1935.

The meetings of the Council of Oregon State Medical Society have been adjourned during the summer season, but the committees continue their activities. The committees having in charge our annual meeting which will be held September 19-21 at Gearhart (instead of at the earlier date previously announced) are busy with the program and other details which give promise of an outstanding program and a record attendance.

Oregon State Medical Society and especially Multnomah County Medical Society are felicitating themselves on the number of national and sectional society officials among their number. Recently Ralph A. Fenton was elected a member of the board of trustees of our national society. This is an honor not only to Dr. Fenton but to our society. His election to this office meets with the hearty approval of our membership. Dr. Fenton replaces Joseph A. Pettit who has been a member of the board of trustees for the past ten years and who, according to the by-laws, was

ineligible for a further term. The Society, through the membership of Dr. Pettit on the board of trustees, has been ably and efficiently represented, and their gratitude is due him for the highly satisfactory manner in which he has functioned in the House of Delegates and on the board of trustees of our national society.

The Western section of American Urological Association elected Albert E. McKay their president for the coming year. Dr. McKay, as head of this association, comprising a specialty to which he has devoted his life, will prove to be a president of whom they may be proud.

The election of Mabel Akin of Portland as president of the Medical Women's National Association at Atlantic City last month adds another high official of a national organization to Portland's membership. We congratulate Dr. Akin and her society in their choice.

A year ago Charles T. Sweeney of Medford was chosen president-elect of the Pacific Northwest Medical Association, and at its recent meeting was inducted into the office of president. Dr. Sweeney's personality and energy augur

for an outstanding meeting of this organization next year in Portland. At the same meeting Banner R. Brooke was made vice-president of this Association and Blair Holcomb, counsellor. This team of three working with the other officers will accomplish great things for the next Pacific Northwest meeting.

Oregon joins with Washington in felicitations on the election of J. Tate Mason of Seattle as president-elect of the American Medical Association. This honor is justly bestowed upon Dr. Mason, and in honoring him our National Association has honored itself. Dr. Mason's standing in the community is warrant of the high type of service that he will render the entire membership of our great organization. The members of the Oregon Society are happy to join with our Washington brothers in celebrating this happy event. ADALBERT G. BETTMAN, *Editor*.

REPORT ON BIRTH CONTROL

Portland, Ore., July 5, 1935.

To the Council,
Multnomah County Medical Society,
Portland, Ore.

Sirs:

Your committee on Public Health and Hygiene has considered the proposal from the Oregon League of Women Voters for establishment of a birth control clinic as outlined in a letter from Dr. Jessie L. Brodie. In such consideration we have attempted to weigh the basic factors involved, particularly the respective functions of voluntary social agencies and the medical profession in relation to contraception. It is also desirable to view the legal situation in Oregon as it relates to birth control. Finally, consideration was given to the present availability of contraceptive information and the question as to whether a so-called birth control clinic is needed.

The necessity of birth control measures is undoubted in certain physical conditions, where pregnancy endangers maternal health. However, the greatest present pressure for making them available seems to come from economic causes, especially among the more intelligent people with small means, to whom the financial load of pregnancy, confinement and child care seems overwhelming. In that portion of the population, where intelligence and financial responsibility are at low ebb, the desire for control of conception appears to come largely from social workers and other members of society outside the immediate family.

The function of physicians in relation to contraception as we see it is: (1) to inform themselves concerning proper methods and devices and the indications which make contraception desirable in the interests of the physical and mental health of their patients and to supply such information in indicated cases in the same manner as in any other phase of medical practice; (2) to provide proper information and materials upon the request of patients who wish for economic or other personal reasons to limit the size of their families.

It is not the function of the physician to advocate the limitation in cases in which the purpose is other than to safeguard the physical or mental health of the patient. This is the problem of the State or of the woman and her husband, although social agencies may properly attempt to convince certain sections of the population of the desirability of limiting the size of their families.

It is our opinion that the functions of voluntary nonpro-

fessional agencies should be limited to: (1) carrying on, if they so desire, educational work urging families with low incomes to limit the number of children; (2) informing persons who request contraceptive information as to how to obtain the same from reliable medical sources. Non-professional agencies should not attempt to set up machinery to supply information or materials, as this is a phase of medical practice, but should utilize existing professional agencies, i. e., the private physician, for those able to pay, the University of Oregon Clinic for those unable to pay.

So far as the dissemination of contraceptive information by physicians is concerned, Oregon is a nonrestrictive state, i. e., there is no legal barrier to physicians supplying information and materials to their patients. Indeed, the law enacted at the 1935 session of the state legislature in effect recognizes the demand for contraceptive information and prohibits the distribution of contraceptive devices by the State Board of Pharmacy acting with the approval of the State Board of Health. Contraceptive information and devices must, however, reach the patient without the use of the mail, express or common carrier, as such transportation is forbidden by the federal law.

Oregon does have a law forbidding the preparation, advertisement and distribution of obscene literature and articles of indecent use. It appears that the practical effect of this law in relation to contraception is probably to make unlawful the distribution of contraceptive information or materials to unmarried persons or to prostitutes. Legal opinion is to the effect that this law does not prohibit the physician from supplying married women with contraceptive information or materials. This view is strengthened by the enactment to which reference is made above.

A casual survey of the existing situation indicates no special need for a birth control clinic. Inquiry reveals that a large percentage of our members are providing contraceptive information and devices to their patients when requested to do so. In many cases physicians are supplying information on request from their regular patients without charge.

In other cases physicians are giving instructions on request at the time of making the medical examination of male applicants for marriage licenses. The fees charged are for the most part very nominal. The University of Oregon Medical School Outpatient Clinic is available to and is serving those who are unable to pay.

If it is felt to be desirable, a list of members who will supply such information on request may be compiled. Such lists could be made available for reference at our society headquarters and through other organizations to which inquiry on such matters is likely to be made. The additional fact that such information is available on request from the private physician at fees adjusted to meet the patient's circumstances could also be disseminated.

Respectfully submitted,

RALPH A. FENTON,

FRANK R. MENNE,

FRANK R. MOUNT,

Committee on Public Health and Hygiene.



WASHINGTON

IMPORTANT SUGGESTIONS TO THE PROFESSION

Everett, Wash., July 22, 1935.

As stated in my last letter, a meeting of the Trustees of Washington State Medical Association was called in session to discuss and act upon the question of cooperation of the medical profession, in conjunction with the dental, pharmaceutical, nursing and hospital associations, with the State Department of Public Welfare in distributing medical relief to the three classes who will be permanently on relief hereafter. It was learned from the experience in Pierce County that the work done and money distributed to the doctors was many times more than all the others. It was, therefore, decided that, while we would cooperate fully with the department and other professions, we owe it to ourselves and the public to take a lead in the matter, study a little further what is an adequate relief standard and for what fees adequate relief might be given, and then get together with the department and see what plan is most feasible.

This preserves the time honored position of the profession as desiring to protect public health to the highest possible degree and establishing the fact that we will be contributing as much or more to the maintenance of this standard as all the rest of the population combined. It was finally decided that the State Medical Service Bureau is the agent through which this matter should be worked out. At a meeting of the Trustees of the Bureau held in Seattle, and attended by men from nearly all bureaus of the State, a plan was presented by the Executive Committee who had been working on it. This is a slight modification of the plan now working on emergency relief and will place the dispensation of medical relief on a business-like basis, maintaining the dignity and ethical standards of the profession.

A conference will be held with the State Department of Public Welfare, and the result I am sure will be a uniform state-wide plan, applicable to all the counties and doing away with misunderstandings and friction. It is earnestly hoped that through this the indigent and those for any reason "on relief" will be more adequately cared for, and that the health standard of the present and oncoming generation may be maintained at its best.

I am wondering how many have heard the program put

on over KOMO on Tuesdays, 4:20 p.m. (I was misinformed when I said Thursday in my last letter.) The radio people and players, who are putting on these playlets, written by Dr. Frank J. Clancy of Seattle, Chairman of the Public Relations Committee, are getting more interested in this as the weeks go by, and have promised a more popular hour, some time in the evening. Listen in and tell your delegates what you think of them, because the question is being considered of continuing them as a means of educating the public as to the value of ethical medicine and to combat the propaganda for socialized medicine.

How would it do to write KOMO and tell what you think of them? Records are being made so that they can be put on by electric transmission in each county where there is a local radio station. It seems that cities on the east side of the State do not get good receptions from the Seattle stations.

The next eighteen months should be an active period for Washington State Medical Association. I sincerely hope that a new Constitution and By-Laws may be adopted, that, besides bringing our present By-Laws up to date and in line with the times, we may provide for a President-elect who will be more efficient when he takes charge of the Association, and for an all-time paid Executive Secretary who can keep things going.

I firmly believe that these two things will be the means of planning and keeping the medical profession in the rightful position as the leader of the health forces of the State. Of course, it means increased dues but these will all come back to us through increased prestige in our individual spheres. Surely, if business men find it profitable to spend large sums to establish and maintain business, we can profit by their example.

One of the most reserved and conservative men in the profession stated to me the other day that he felt we should have at least \$50,000 for the next biennium, \$25,000 per year. Increased dues? Yes, to the extent of approximately three cigars or two packages of cigarettes or "what have you" per week, and what a return in self-respect, public prestige and, I believe, economic stability.

NATHAN L. THOMPSON,

President Washington State Medical Association.

IDAHO

THE IDAHO PROFESSION AT BOISE

Twin Falls, Ida., July 23, 1935.

There is little activity of the Idaho Association to report other than that the plans are going ahead for a splendid meeting in Boise. The men in Boise are perfecting their preparations for us and that means well nigh perfection. The faculty from Northwestern write that they are industriously and carefully preparing the best course for us they can. The Auxiliary will meet with enthusiasm and our wives will be delighted to have attended the session with us. The meetings held for the public will be a new feature

worthy of your attendance, and will be a worthwhile and overdue service to the public on our part.

It is hoped you will look upon this meeting as an opportunity to get a great deal for a minimum investment of time and money. Do not hesitate to give it five days. The material offered to you is the equal of anything you could get by going east and spending five days for the round trip. Every effort has been made for your society to furnish you a unique and invaluable meeting. Each member attending will contribute to its success. The slogan, then, is "On to Boise. Bring your wife."

CHARLES R. SCOTT,

President Idaho State Medical Association.

BOOK REVIEWS

CLINICAL TUBERCULOSIS. Edited by Benjamin Goldberg, M.D., F.A.C.P., F.A.H.A., Associate Professor of Medicine, University of Illinois College of Medicine, etc., with the Collaboration of 33 Contributors. In two volumes. Fully illustrated with over 640 half-tone and line engravings and 9 full-page color plates. \$22.00. F. A. Davis Co., Philadelphia, 1935.

Like many modern medical works this two-volume treatise on tuberculosis is the result of the collaboration of a number of authors. With some thirty-four men contributing to the work it has been possible to assign each section to an expert rather than to risk having one individual, however clever, attempt to cover the whole field. The wide territory surveyed in the numerous divisions of this excellent presentation leaves nothing to be desired, and there are innumerable charts, sketches, roentgenograms and colored plates illustrative of the text. Beginning with Drolet's chapter on epidemiology, various authors discuss bacteriology, immunology, histopathology and pathologic physiology. Then diagnosis is very thoroughly dealt with in its several parts. Every conceivable factor in treatment is carefully presented and the newer surgical methods are elucidated by such men as Matson, Coryllos and Hedblom. Tuberculosis of tissue other than pulmonary is also included. Tuberculous enterocolitis, peritoneal, urogenital, eye, ear, nose, throat and even orthopedic tuberculosis are all well and thoroughly covered.

This work makes a tremendous appeal to anyone interested in tuberculosis because it appears to be at once the most comprehensive and perhaps the most dependable treatise to be found. To attempt a review of such books is like taking an afternoon off to learn about Russia. It is both hopelessly inadequate and a little foolish. One could very well use all the space allotted to a reviewer in commenting on a couple of chapters. Certainly these two volumes, bringing down to date our knowledge of tuberculosis in complete, authentic and interesting style, should be in the library of every man who undertakes the management of this disease.

SLYFIELD.

THE PRINCIPLES AND PRACTICE OF MEDICINE. Designed for the Use of Students and Practitioners of Medicine. Originally written by the late Sir William Osler, B.T., M.D., F.R.S. Twelfth Edition. Revision by Thomas McCrae, M.D. Fellow of the Royal College of Physicians, London; Professor of Medicine, Jefferson Medical College, etc. 1196 pp. \$8.00. D. Appleton-Century Company, New York, 1935.

This volume is a perpetuation of the classic treatise of the great Osler, first published in 1892, and without a rival in its purity, lucidity and conciseness combined with its unique authority. While little is left in the text of the original Osler, yet the author has adhered to the oslerian simplicity, clarity and brevity of style and has achieved remarkable completeness in consequence. He possesses the rare ability to present the essentials of a subject and has brought the work well up-to-date.

As an example of the clearness of discussion, we will consider his exposition of chronic nephritis. The classification of most writers leads into a maze of confusion. The author simply classifies the disease under two heads: chronic nephritis with edema, with retention of salt and water, and chronic nephritis with hypertension and retention of nitrogenous products in the blood. He explains that in all

cases of chronic nephritis we have a diffuse process involving more or less the interstitial, epithelial and glomerular tissue and to make a clinical clear-cut anatomic diagnosis in any given case is impossible. It is fully recognized that many intermediate forms of nephritis exist with every grade of variation between the marked chronic nephritis with edema and the pure sclerotic or interstitial type. The clinical significance of any given case of chronic nephritis is chiefly determined by the result of the various tests of renal function.

There is a splendid article on coronary artery occlusion. The clinical description is masterly. It is noted that it is not infrequently difficult to discriminate surely between an attack of angina pectoris and coronary thrombosis in atypical cases and that it is safer to regard doubtful attacks as due to occlusion. It is boldly asserted that in coronary occlusion the first thing to be done is to give one-half grain of morphine subcutaneously. If this does not relieve the pain promptly, one-third of a grain more should be given. One usually finds in text-books that morphine should be used but the dose is not mentioned. The large immediate dosage is probably often life-saving because there is always a large element of vascular spasm beside the actual coronary occlusion. It has recently been found at Rochester that in embolism of the arteries of the lower extremities gangrene and amputation may be avoided by giving papaverine to overcome the general vascular spasm and facilitate collateral circulation. The advice in aftertreatment of coronary occlusion that complete rest be secured for six weeks or longer in severe cases is refreshingly definite and will be appreciated by those without much experience.

There is an excellent discussion of amebiasis and emphasis is placed on the lesser danger of transmission of the disease by carriers as compared to that of contaminated water, exemplified in the Chicago outbreak. This article is extraordinarily complete, considering the necessary condensation of subjects in a work of one volume covering the whole domain of medicine. Only one omission noted was the occasional occurrence of amebic granulomata in the lower bowel, several of which the reviewer has observed. These are naturally taken for carcinoma and operation is done without recognition of the true nature of the growth until a pathologic diagnosis is made. A one-volume treatise on medicine is essential for the student and most convenient for the practitioner. No similar publication is better than the present work, not even when written by many distinguished authors. The reviewer cannot recommend it too highly for the use of all practitioners of medicine.

WINSLOW.

ELECTROTHERAPY AND LIGHT THERAPY. By Richard Kovacs, M.D. Clinical Professor and Director of Physical Therapy, Polyclinic Medical School and Hospital, New York, etc. Second Edition, Thoroughly Revised. Illustrated with 263 engravings. 696 pp. \$7.50. Lea & Febiger, Philadelphia, 1935.

Physical therapy has become established as an essential feature in medical and surgical practice. While many books have been written describing this form of practice, none is more complete and authoritative than this volume. Part I, dealing with electrophysics, discusses the principles underlying the electric current and its application in medical treatment. In Part II general electrotherapy and electrodiagnosis discuss the effect on the body of the various currents, such

as galvanic, currents of low tension and low frequency as well as those of high frequency. The physics and effects of these various currents are considered in detail and their therapeutic uses described. The same consideration is given to static electricity, with which every physical therapist should be familiar. Since diathermy occupies such a prominent part in physical therapy, suitable space is devoted to its effects and indications with detailed description of the technic of its medical and surgical applications. Since the first edition of this work short wave diathermy has been introduced which is duly considered by the author. The production of hyperpyrexia by ordinary diathermy and short wave application is properly presented. Part III, dealing with light therapy, describes radiant energy, infrared and ultraviolet radiation. Each of these subjects is clearly described with the therapeutic application of each. In Part IV, under the headings of applied electrotherapy and light therapy, the different forms of disease and pathology are given in detail which may be benefited by various physical therapy measures. The book has an abundance of illustrations which help to clarify and emphasize various features of practice. This volume can be highly recommended to anyone seeking information regarding the principles of physical therapy and desiring a guide for its practical application in every day practice. No superior work on this subject is presented at the present time.

DISEASES OF THE SKIN. By Richard L. Sutton, M.D., Sc.D., LL.D., F.R.S. (Edin.), Professor of Dermatology, University of Kansas, School of Medicine, and Richard L. Sutton, Jr., A.M., M.D., L.R.C.P. (Edin.), Assistant in Dermatology, University of Kansas, School of Medicine. With 1,310 illustrations, and 11 colored plates. Ninth Edition. 1433 pp. \$12.50. The C. V. Mosby Company, St. Louis, 1935.

This edition differs somewhat from previous ones. The work describes a large number of newly discovered dermatologic entities, herein included for the first time. The text is valuable to any one interested in dermatology as the rather brief descriptions of numerous dermatoses are amply compensated by the excellent illustrations which appear in profusion, several in colors. Diseases described are considered under hyperemias, inflammations, hemorrhages, hypertrophies, atrophies, anomalies of pigmentation, neuroses, new growths, diseases of the appendages, parasitic affections, diseases of the mucous membranes adjoining the skin. The value of the book is supplemented by the complete bibliography listed at the end of each disease discussed, which is up to date, including foreign as well as American literature. This volume is valuable for the general practitioner on account of the special attention given to diagnosis. It should prove excellent for ready reference.

PARKER.

THE 1934 YEAR BOOK OF OBSTETRICS AND GYNECOLOGY. Obstetrics edited by Joseph B. DeLee, A.M., M.D., Professor of Obstetrics, University of Chicago Medical School, etc. Gynecology edited by J. P. Greenhill, B.S., M.D., F.A.C.S., Associate Professor of Gynecology, Loyola University Medical School, etc. 717 pp. \$2.50. The Year Book Publishers, Inc., Chicago, 1935.

This book is divided equally between obstetrics and gynecology. It covers without doubt every subject dealing with these two specialties brought out in the past year. In it we are given abstracts of articles by the world's most renowned men with timely comments by the editors on the various subjects. There is a strong tendency, knowing well the reputation of the editors, to read the com-

ments first and if they agree or are favorable to the author, then read the article. Invariably the editor is right.

In the obstetric division the comments of DeLee are especially notable. We read an article and for a moment are taken away with its great possibilities, until we read the comments; then DeLee stops our enthusiasm and preaches his forever conservatism and we believe he is right. He condemns the various lay magazines with their gross exaggerations of the painless childbirths now being obtained.

The gynecologic section has a great deal to offer. The question of sterility is taken up at great length and special stress laid on technic and accidents due to injection. Menstruation is discussed thoroughly as well as the futility of glandular therapy when all statistics have been compiled. Some good work is reported but nothing warranting the enthusiasm our leading drug houses would want us to believe. Presacral sympathectomy for dysmenorrhea, when all other means have failed and they usually do, has given excellent results. This book covers everything up to and including October, 1934. Therefore, the articles are recent and up to the minute.

CARROLL.

THE WOMAN ASKS THE DOCTOR. By Emil Novak, M.D., F.A.C.S., Associate in Gynecology, Johns Hopkins Medical School. Illustrated by Carl Clarke. 189 pp. \$1.50. The Williams & Wilkins Company, Baltimore, 1935.

The author calls attention to the frequency with which women patients seek information concerning the physiology and functions of their generative organs. The purpose of this book is to offer a simple exposition of these special problems of womankind. It is not intended as a popular textbook of gynecology, neither does it discuss unduly sex problems. After describing the reproductive apparatus of women, their cause and significance of menstruation are described, attention being paid to the characteristics of normal menstruation and the menopause. There is a discussion of the popular birth control question, especially as it refers to the so-called "rhythm," by observation of which it is claimed women can control and regulate conception. While this may be effective in the woman with the ordinary twenty-eight day period, the author points out the uncertainties for those with irregular periods which is common with so many. Under discussion of sterility it is emphasized that the fault may very commonly lie with the husband rather than the wife and the necessity of a complete examination of both is emphasized. This is a sensible book which anyone could read with profit who seeks information concerning the female genital apparatus.

CLINICAL LABORATORY METHODS AND DIAGNOSIS. A Text-book on Laboratory Procedures with Their Interpretation. By R. B. H. Gradwohl, M.D., Director of the Gradwohl Laboratories; of Laboratories St. Louis County Hospital, etc. With 328 Illustrations in the Text and 24 Color Plates. 1028 pp. \$8.50. The C. V. Mosby Co., St. Louis, 1935.

In this book the author has given to the medical profession a very complete, impartially selected, unbiased survey of all available clinical laboratory diagnostic methods. He has brought the surgeon and the clinician together in a way that both may become aware of their relations in the care and best interest of the patient. The subject matter found in the chapters on blood chemistry and hematology is most exhaustive and thoroughly covered, and in the latter Schilling's classification given in detail is of the greatest importance because of its universal recognition and

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GARHART.

THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioner's Index. Editors: H. Letheby Tidy, M.A., M.D., Oxon., F.R.C.P., and A. Rendle Short, M.D., B.Sc., F.R.C.S. Fifty-third Year 522 pp. \$6.00. William Wood and Company, Baltimore, 1935.

This volume is unequaled as a review of medical progress from year to year. Thirty-three contributors from the British Empire review the progress and medical advances as they are recorded from all parts of the world. The introduction by the editors offers a summary of progress respectively under medicine and surgery. This is followed by a dictionary of practical medicine, in which appear alphabetically references to medical and surgical subjects covering the whole range of practice. Abundant illustrations amplify the text. Probably no single volume presents such a wide expanse of information as is found in this book.

SURGICAL CLINICS OF NORTH AMERICA. Issued serially, one number every other month. Volume 15, Number 3.

Chicago Number, June, 1935. 239 pages with 119 illustrations. Per clinic year, February, 1935, to December, 1935. Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1935.

This volume presents contributions from twenty-one Chicago surgeons connected with its hospitals and medical institutions. A notable contribution is a symposium on fractures, containing reports from Speed, Straus, McKenna, Christopher and Ellis. These include fractures of head of the fibula, femur, humerus, tibia, carpus and sternum. Much of interest is presented in these reports. Surgical conditions of various organs of the body are herein discussed with reports of varied clinical experiences.

AIDS TO OPHTHALMOLOGY. By N. Bishop Harman, M.A., M.B. Cantab., F.R.C.S. Eng., Hon. LL.D. Man., Consulting Ophthalmic Surgeon, West London Hospital, etc. With 203 Illustrations. Eighth Edition. 242 pp. \$1.25. William Wood & Company, Baltimore, 1935.

This thoroughly revised edition seeks to bring into line new methods of investigation and treatment. It deals with the ordinary problems of the ophthalmologist, rarer diseases being intentionally omitted. There are seven chapters on refraction which form a complete guide to the student. All common diseases with their operative and other treatment are concisely presented. One chapter is devoted to operations most commonly employed. This booklet is of convenient size for handy reference.

CATARACTS FOLLOWING THE USE OF DINITROPHENOL: PRELIMINARY REPORT OF THREE CASES. Warren D. Horner, Richard Barr Jones and W. W. Boardman, San Francisco (*Journal A. M. A.*, July 13, 1935), observed three cases of cataract occurring in patients who have been receiving dinitrophenol as a weight reducer. The age of the patients and the absence of other external or physical factors suggest dinitrophenol as the cause. All three patients have shown posterior subcapsular opacities resembling brass filings, together with faint powdery, anterior subcapsular changes. Two of the three have shown a peculiar dried appearance of the anterior capsule. In these two the lens changes have been markedly rapid in their development. In only one other condition, namely, frank traumatic cataract, have the authors seen lens fibers change so swiftly. In only one out of these four eyes has vision remained stationary for as much as three weeks. The others have progressed to blindness. The third patient has not been under observation long enough to determine progress. Since her opacities are the faintest that have been observed, the outlook may be better. The effect of dinitrophenol on the lens may be toxic, metabolic or dietary. It is known for a certainty that dinitrophenol does increase metabolism to a high degree and that it is possible to maintain this high degree during the administration of the drug. It is conceivable that the lens changes result from this excessive burning up of body tissues. Dehydration may be a factor, although this was carefully guarded against in the dinitrophenol administration. The hyperopia found at first examinations, particularly when previous refractions had been myopic, suggests a thinning of the lens with decreased refractive power. If this is a drying out process, the roughened, dry-looking anterior capsule might follow. However, forced fluids in one case did not cause any appreciable difference either in the appearance of the capsule or in the disappearance of hyperopia as compared with another case, in which less water was given. Another possible explanation might lie in some food deficiency on account of the restricted diet these patients received. Particular care was given, however, to guard against this in the selection of their diets. In six cases examined, in which dinitrophenol was taken for a considerable time, three showed lens changes of identical types.

TREATMENT OF TRICHOMONAS VAGINITIS WITH CONCENTRATED SALT SOLUTION. Lazar Rosenthal, Leo S. Schwartz and Joseph Kaldor, Brooklyn (*Journal A. M. A.*, July 13, 1935), studied the action of hypertonic salt solutions on trichomonas vaginalis. The fact that trichomonas vaginalis is an extracellular parasite living free in the vaginal secretion made it possible to conduct the experiments in vitro. It was found that a 25 per cent salt solution made the phenomenon of inactivation permanent and irreversible. The parasites could not be returned to life when transferred to a physiologic salt solution. On the basis of these experiments we began to apply salt in the treatment of patients suffering with trichomonas vaginitis. Vaginal douching with a 25 per cent solution of salt was adopted. The patient herself at home can easily prepare an approximate 25 per cent solution by dissolving 1 glassful of salt in 4 glassfuls of hot water. The solution is used at body temperature. The douching is well tolerated by the vaginal mucosa and does not cause any irritation or discomfort. In nearly all of the fifty-six cases the relief was prompt after one or two daily douches. The itch disappeared, the discharge became scanty, thin in character and odorless, or even disappeared entirely, and the vaginal mucosa assumed a normal appearance. In thirty cases, no more live trichomonas organisms could be found after two or three douches. Twenty-four cases showed complete absence of live parasites after one week of daily douches and two cases required two weeks of daily douches to bring about the disappearance of the parasites. It is a known fact that, with every method of treatment, the trichomonas vaginitis has a tendency to recur after menstruation.

BREATH ODORS FROM ALLIACEOUS SUBSTANCES: CAUSE AND REMEDY. Howard W. Haggard and Leon A. Greenberg, New Haven, Conn. (*Journal A. M. A.*, June 15, 1935), state that the odor given to the breath by onion or garlic comes from the essential oil contained in these vegetables. The oil does not, as has been suggested, reach the breath from aeration of the blood in the lungs, from pulmonary secretion, from salivary secretion, or in air passed from the stomach. It arises solely from particles of onion or garlic retained in the structure about the mouth. Quantitative experiments demonstrate this fact.

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No. 9

HYPOTENSION

GROWING APPRECIATION OF ITS IMPORTANCE*

O. H. PERRY PEPPER, M.D.
PHILADELPHIA, PA.

I have chosen this topic for one of my talks to you because it seems to me we are slowly coming to appreciate the importance of hypotension in a number of different directions. Perhaps hypotension has been neglected because of the tremendous emphasis which has of late years been placed on the opposite condition of raised blood pressure or hypertension.

It is not necessary for me to present evidence to justify my statement of overemphasis on high blood pressure. Everyone of us meets this situation frequently in our patients and our lay friends. It is one of the unfortunate results of the efforts which have been made to educate the laity along medical lines. I am in favor, of course, of all possible education of the laity where such education leads to the recognition or early treatment of a condition which can be cured by treatment. Few doubt the value of the educational program for the early diagnosis and prompt treatment of cancer, and few doubt that it has accomplished much.

On the other hand, I am not at all convinced that the propaganda concerning high blood pressure has achieved anything except to frighten the victims of this condition, to make them neurasthenic and to subject them to the wiles of charlatans and quacks.

The only happy patient with hypertension is the patient who is in ignorance of his ailment and is not being treated too enthusiastically for the disease. High blood pressure is at present not often relieved or cured. The patient with high blood pressure is frequently active and happy until late in the disease. How few of us have seen patients with high blood pressure cured by our efforts? On the other hand, there is not one of us but has seen a patient made nervous and fearful by the knowledge that his pressure was high, taken from work, condemned to a salt-free diet and an inactive life without beneficial result.

On the other hand, hypotension is a common cause of ill health. The patients at best are under par and easily fatigued. As Bishop has written, the patient with hypotension lives to a miserable old age. In such patients, thought by their friends and doctors to be neurotic and neurasthenic, the hypotension factor is frequently neglected. Far more important than the neglect of low blood pressure in this group, it seems to me, is the neglect of this factor in the production of far more serious conditions. Some of these I wish to discuss with you today.

There is no arbitrary limit for the lower level of normal blood pressure. Some have tried to place it at 110—, others at 100 millimeters of mercury. But when one studies large series of individuals with no definite illness, one finds a considerable percentage will show a systolic pressure below 110. It has even been said that 20 per cent of the pop-

*Read at the Nineteenth University of Washington Annual Graduate Lectures, Seattle, Wash., July 15-19, 1935.

ulation have a systolic pressure below 110. But we must not let the frequency of such low systolic pressure lessen the importance of hypotension as a cause of symptoms and ill health. I say this because, while some individuals seem in perfect health and vigor with low pressure, others in the same group present phenomena which we feel fairly sure, at least in part, arise from the low blood pressure. The factor which differentiates the two groups is, I think, the question as to whether the pressure is maintained habitually at a level, let us say, of 110 or whether under slight provocation it falls far below its habitual level.

The variations of the blood pressure downward can be classified in groups that are analogous to those into which we divide high blood pressure conditions. In each there is an essential or primary type and in each there is a secondary or symptomatic type. The primary types can well be called idiopathic for we certainly know very little about their causation. The causes of the secondary type are just as numerous in low as they are in high blood pressure. Thus, for example, we recognize low blood pressure as an associated finding in myxedema, in peptic ulcer, in focal infection, in tuberculosis and in Addison's disease of the adrenals. If time permits, we may return to some of these secondary types of low blood pressure.

Furthermore, hypotension, just like hypertension, may be transient or constant. And this is a fact which I think deserves the greatest emphasis. In fact, the variability of blood pressure is a conception essential to our understanding the manifestations of either hypertension or hypotension. We are all familiar with the fact that the blood pressure is easily influenced. We show that we know this fact by discarding the readings which are made when the patient is apprehensive or nervous. We ignore the first readings on our inexperienced patient who has just come to our office or just been admitted to the ward. We have all had experiences which brought this truth home to us.

I have seen a blood pressure fall from 180 to 120 systolic during the period of an office visit. The patient was an aviator who had begun to develop nerves. He had been examined, found to have a high blood pressure and told that he would soon die. He arrived in my office in a highly hysterical state. His pressure was 180 systolic. Chatting with him for fifteen or twenty minutes as he lay on the couch, I then asked him whether he understood

the mechanism of the blood pressure apparatus. His interest in mechanics distracted his attention from himself and shortly he was pumping the bulb up and down himself, watching the mercury column while I was making a reading, and found his pressure under 130.

Variations of blood pressure occur for both physiologic and pathologic reasons. It is known that the pressure is higher in the latter part of the day than in the morning. It is raised by ordinary meals. It falls during quiet sleep, the low point being some two hours after the individual has gone to sleep, at which time pressure is apt to be some 24 points lower than the habitual waking level. Disturbed sleep, however, may raise the pressure to as high as 200, the degree being dependent upon the nature of the mental activity of the sleeping individual. We all know that acute exertion raises the blood pressure, and we have had our attention drawn frequently to the relationship between acute effort and, let us say, cerebral hemorrhage. What we have not had our attention sufficiently drawn to, however, is the effect of certain factors acting to cause transient lowerings of blood pressure, with the appearance of symptoms more or less serious and even the appearance of organic results such as thrombosis of a cerebral or coronary vessel. Low blood pressure bears the same relationship to thrombosis as high blood pressure does to arterial hemorrhage. Both occur only in a diseased vessel, it is true, but that diseased vessel might have continued to function satisfactorily, if the blood pressure had not been altered perhaps only transiently by some episode in the patient's life.

I believe there have been two chief errors in the literature on the production of transient changes of blood pressure. The first of these concerns the effect upon the blood pressure of certain types of episode. It is clear to me that the sort of thing which causes a rise in the blood pressure will, if continued, lower the pressure. Thus, for example, we know that sudden physical exertion raises the pressure; we also know that long continued exertion carried to the point of exhaustion, results in a sharp lowering of pressure. The same thing is true of emotion which first raises the pressure, but when emotional exhaustion results the pressure correspondingly falls. We know that sometimes fever will raise pressure, but the effect of a long infectious disease is to lower it. So you see that it is not always easy to judge from the episode which pre-

cedes some phenomenon whether the pressure had deviated from its habitual level in one direction or the other. Nevertheless, I believe that a careful consideration will usually enable you to decide this point correctly.

The other important error depends upon the fact which is often overlooked that transient falls in blood pressure are just as frequent and even greater in magnitude in individuals who have habitually a hypertension than in the normal. In other words, we cannot assume, because a patient's pressure is over 200 as a rule, that certain phenomena in that patient are not the result of transient hypertension because it is well known that individuals with high blood pressure show great variability in their blood pressure, and to them a blood pressure of 180 may be sufficiently far below their habitual normal to act as hypotension. In other words, there is such a thing as relative hypotension, hypotension being any state of pressure lower than that habitual to the patient. You can see at a glance how important this concept may be.

For example, given a hypertensive individual, in whom it is decided to lower the blood pressure by a free venesection. After some five or six hundred cc. of blood have been removed the pressure is lowered but shortly afterward the patient is found to be hemiplegic. The pressure is still above normal, perhaps 200, although prior to the venesection the pressure had been 240. In the face of this relative hypotension what is the nature of the cerebral accident? Must it be hemorrhage because the patient's blood pressure is still 200 or can it be thrombosis of a chronically sclerosed and narrowed artery thrombosed in the final moment as a result of lowered pressure and slowed blood flow? The French literature has interested itself considerably in the question of hemiplegia following hemorrhage or venesection but they have not presented any evidence as to the nature of the cerebral lesion.

Finally, there is another source of error in this field which arises from the fact that the pressure of the patient at the moment of some symptom or accident is seldom recorded. The habitual pressure is known and the pressure following the episode can be recorded but we do not know what it was prior to the onset of symptoms. This confuses the picture in cases such as coronary thrombosis, where pain is an important feature of the case and, as is well known, pain raises blood pressure so that the finding of a pressure back at its habitual level in a

case of cardiac pain does not exclude the possibility that it was far below normal an hour previously.

This discussion of hypotension, its great frequency of occurrence, both as a constant and as a transient phenomenon, must make clear to you the further steps to be taken in our remarks. Time will not permit us to discuss all the different manifestations and types of hypotension and I wish to limit our discussion to two topics; first, cases of cerebral and coronary thrombosis, in whom transient low blood pressure, actual or relative, is to my mind a most important final factor; and, second, those cases of more constant hypotension, in whom still further transient falls cause definite manifestations such as vertigo and syncope.

With regard to transient hypotension as a factor in the production of thrombosis. Of course, it is only one factor, for, as Aschoff said, there is no doubt at all, to use a mathematical figure of speech, that thrombosis is a function of a number of variables. There is not a single cause but quite a number of different conditions which are closely related to the occurrence of thrombosis. The factors can be grouped in three groups: first, the changes in the vessel wall; second, the changes in the blood; and, third the changes in blood flow. It is the narrowing and tortuosity of the lumen of the artery and the roughening of the intima which occur in the elderly individual with chronic arteriosclerosis which offer favorable conditions for the origin of a thrombosis and for the eventual occlusion of a vessel.

Without disease of the vessel thrombosis will not occur, unless embolic occlusion has first blocked the artery. The changes in the blood which favor thrombosis include changes in the form elements of the blood as in leukemia, polycythemia or thrombocytosis; but far more common as a factor favoring thrombosis is an increased viscosity of the blood such as occurs as one feature of the dehydration in conditions such as extensive burns, violent diarrheal states as in cholera or dysentery and in intestinal obstruction. In all of these the common factor is loss of fluid through the skin in the burned, through the bowel in diarrhea and by vomiting in intestinal obstruction. Third, the changes in blood flow which favor thrombosis are naturally its slowing and this obviously is related to blood pressure. Of course, the matter is not as simple as this for there are protective compensations in the body,

especially in the cerebral vessels, which through vasomotor control compensate for any fall in systemic blood pressure.

The hypothesis which I am stressing is that, given an individual with a sclerosed, narrowed, roughened artery, whether that be in the brain or in the myocardium, the incident which finally leads to thrombosis will be of such a nature as to favor thrombosis through some change in the blood or some change in the blood flow or through a combination of the two. Let me repeat; the type of episode which frequently precedes thrombosis of cerebral or coronary artery, trifling infection in the arteriosclerotic, is frequently a cause; acute indigestion is a story which is frequently obtained in such cases. There may be more justification for the old view that individuals died of acute indigestion than we are today inclined to grant. Cardiologists are very critical today of the doctors of a generation who called coronary thrombosis acute indigestion.

The sequence of events as I see them is that an individual with a rusty artery did get acute indigestion as the result of overeating, overdrinking or emotional disturbance during a meal and, incident to the acute indigestion, there was a vasomotor failure with fall of blood pressure and the final occlusion of whatever artery was most liable through narrowing and roughening. If this occurs in the coronary artery, then coronary thrombosis is the diagnosis; and if the patient dies he dies of coronary infarction today, whereas a generation ago he would have died of acute indigestion. The list of episodes preceding coronary thrombosis given by FitzHugh and Hamilton include a variety of departures from the patient's ordinary habits of living, including prolonged exertion, loss of sleep, fatigue, overeating, acute infections, surgical operations, etc. Now, it seems to me, the factor common to all of these episodes might well be transient depression of systemic blood pressure.

If it is the cerebral artery which becomes blocked under similar conditions, then the diagnosis should be cerebral thrombosis, but unfortunately it is far too often assumed that the hemiplegia is the result of hemorrhage into the brain and the differential diagnosis between thrombosis and hemorrhage is not sufficiently often made. Since I became interested in this thesis, I have seen a good many cases in which this point of view seemed to me to be helpful in understanding the mechanism of coronary thrombosis or cerebral thrombosis and in differentiating

these from other conditions and, as we will refer to in a moment, influencing our treatment.

I have seen several instances of coronary thrombosis in relatively young men and in each the remark was made, is it not unusual to see coronary thrombosis in such a young man? In each instance that has led me to inquire concerning the habitual blood pressure of the individual, and in the majority of these cases I have had the satisfaction of learning that the patient was known to have been an individual of low tension.

It is obvious how this point of view influences one's ideas as to treatment in cerebral and coronary thrombosis. Let us discuss cerebral cases first. If one is faced with a cerebral hemorrhage, one is tempted to try measures directed to the lowering of pressure. I think we must all admit that the results of these efforts are usually unsatisfactory, and that most of the treatment which we carry out in cases of cerebral hemorrhage does the family more good than it does the patient. Nevertheless, the general point of view is that the hemorrhage has resulted from high pressure or arterial disease or both, and we should lower pressure in the cerebral circulation. The procedures we carry out are usually useless if it is hemorrhage, and are certainly harmful if they succeed in lowering pressure in a patient in whom thrombosis has occurred as a result of lowered pressure.

In thrombosis which is increasing, it should be our effort to improve circulation and avoid further extension of the thrombotic clot. The patient should be kept warm, fluids freely administered and caffeine or alcohol administered to improve blood flow through the cerebral circulation. If we are wrong in our diagnosis, we will probably not do our patient very much harm. If we are right in our diagnosis, we may do our patient much good. It is a little harder to bring one's self to follow this thesis to its logical conclusion in cases of coronary occlusion, and yet I think there is a good deal to be said for the advantages of this therapeutic approach even in the cases of coronary occlusion, but only during the early days. We must be very careful later, when the myocardial infarct is weakening and healing, to keep our patient quiet and at rest.

More important, perhaps, than the procedures to be carried out at the time of the cerebral or coronary occlusion is the application of this theory to the prevention of subsequent attacks of thrombosis. A great deal can be done in the elderly individual to avoid permitting the blood pressure to fall to a

level dangerous in its tendency to promote thrombosis. It is difficult to keep an individual from raising his pressure abruptly by sudden exertion or emotion but it is easier to insist on the avoidance of fatigue, on the prompt taking to bed of the patient with infection, the prompt summoning of the physician when diarrhea or vomiting occurs and by such measures the pressure may be kept at its habitual level and thrombosis avoided.

Even easier it is for us to avoid being responsible ourselves for an attack of thrombosis. We can, if we think of it, take thought before we embark on a reduction of blood pressure in cases with sclerotic arteries; and we can be on the alert to try by various measures to keep the pressure up when it is lowered by necessary surgery at our hands. I admit that we are often between the devil and the deep sea. A patient with a blood pressure of 220 and arterial disease may be in danger of an arterial rupture and perhaps we would like to reduce the pressure and then, if my thesis is correct, we run into the other danger of favoring thrombosis by slowing blood flow. My own view is that the latter is a far more frequent happening than we have suspected, and that not very much can be done about the former any way. I recommend to you the proposition that hypotension, often transient and often occurring in those whose blood pressure is habitually high, is the common factor in the production of thrombosis and that thrombosis is a far commoner cause of acute disease than we have been inclined to credit. I recommend this thesis to you and the corollary that diagnosis and treatment should be influenced by it.

(To be concluded)

SIGNIFICANCE OF MENTAL DISORDERS *

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Why do we have mental disorders and what is their significance? What is their significance to the individual who is afflicted? A consideration of these questions gives one a basis for a better understanding of the causes of mental disease, and a better appreciation of what mental therapeutics attempts to do; why only too often we fail in our efforts to cure and, more important, it will bring out the great possible advantages of preventive measures, and explain why the mental hygiene movement is worthy

of being fostered and developed with the ultimate hope of materially reducing the number of mentally incapacitated.

We all learned in school that man stands at the top of the scale of evolution and owes his superiority over the animals to the extensive development of his forebrain; by virtue of this added cerebral equipment man enjoys capacities and capabilities which the lower animals do not possess. For example, man makes extensive use of tools; has the faculty of highly developed language; can compare objects, materials and situations, and form judgments; has gained the conception of cause and effect with the ability to foresee and anticipate future events. These added capacities are the basis of all social organization, including the relations of individuals to one another, family life and community life, and the basis ultimately of civilization and culture itself. I recall this only to call attention to the tremendously intricate and complicated nervous and mental organization necessary to make modern life and its multitudinous activities possible.

The capacity to carry on the manifold human relations and the ability to mold his environment to satisfy the desires, uses and needs of the individual carries with it always the inherent possibility that one or more of the mental mechanisms constituting the personality may, under stress or strain, break down, and it is with the resulting failures in social functioning that the subject of psychiatry has to deal, just as bodily disease is dealt with in morbid physiology and structural pathology.

A properly functioning mental equipment results in a satisfactory social adjustment, i.e., a happy, successful existence; and the best type of mind is the one that provides a satisfactory and efficient adjustment to the greatest variety of situations in life or the widest scope of efficiency in any given position. Any disorder of mental functioning must necessarily limit the possibilities of the individual as to variety or scope of successful adaptation. We think of a psychosis, then, as a disorder of mental functioning sufficiently marked to interfere with the successful adaptation of the individual as a social unit in the community. From our standpoint life is a continuous series of adaptations to conditions that are always changing, and it is the difficulties encountered in making these adaptations that tend to cause nervous and mental disorders. It has to be remembered that the process of adaptation is not a passive one, but the individual is

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constantly striving to change his environment to suit his own desires.

The human child is born into the world with a number of instinctive desires which result in certain strivings toward definite ends. The main instinctive desires may be enumerated.

INSTINCTIVE DESIRES OF CHILDHOOD

1. Desire for bodily pleasure, for food, drink, bodily comfort.
2. Intellectual curiosity, desire for new experiences.
3. Lust for power and for exhibiting that power.
4. Lust for recognition.
5. Desire for security.

These are powerful forces in the development of character and personality, and to thwart any one of them completely is to socially cripple the future individual. These driving motives continue to operate as the child grows into an adult; they may change somewhat in form, and certain strivings may become more powerful than others, but some of them continue to operate as the propelling force behind each individual's activities throughout life. It is the struggle to satisfy these cravings that determines the individual's conduct and behavior. You can realize in this connection the transcendent importance of early training in the formative years most important in infancy and preschool years; training to the end that the child's strivings to satisfy his inherent desires are guided and controlled into socially acceptable conduct and behavior. It is in this early period that the fundamental habit-patterns are formed and the mind develops certain "mechanisms" by which the individual seeks to accomplish his ends.

But the elements of the surrounding physical and social world are not set to order and desires are often not fulfilled without prolonged struggle or perhaps not at all. Social codes and ethics of the community and the laws of the state have to be reckoned with, and work to intensify the difficulties to be overcome. It is under these circumstances, when the obstacles become overwhelming, and the individual fails to realize certain minimum returns necessary for his self-respect and self-esteem, that mental functioning breaks down and characteristic mental disorder appears. Such an outcome may appear suddenly or may develop insidiously over a prolonged period of months or years.

Persons vary in great degree as to the amount of such stress and strain that can be withstood without breaking; some persons are more stable mentally than others. The special factors which reduce mental stability might be enumerated.

CONDITIONS REDUCING MENTAL STABILITY

1. Inheritance of a poorly organized nervous constitution.
2. Organic disease of the central nervous system.
3. Head injuries.
4. Diseases of nutrition, as diabetes or pellagra.
5. Bodily disease of an organ or system of organs.
6. Acute or chronic infectious disease.
7. Intoxications, as with lead or alcohol.
8. Altered function of the endocrine glands.
9. Certain attitudes and reaction patterns developed during early childhood and period of development, e.g.,

UNDESIRABLE CHILDHOOD TRAITS

- a. Lack of ability for independent action.
- b. Lack of self-reliance.
- c. Oversensitiveness.
- d. Persistent habits of "the spoiled child."
- e. Excessive attachment to one parent.
- f. Failure to establish emancipation from the home.
- g. Failure to establish heterosexuality.

The child must in the course of his training undergo a certain psychic hardening, that the mind in adolescence and maturity may be fortified against the thorns and sharp corners of an unsympathetic world of reality. He must be trained to perseverance and endurance of disappointment and temporary failure.

In the discussion of the nature of mental symptoms I shall follow Dr. Macfie Campbell's book. We say that the mind functions as a mechanism of adaptation to reality; experiences are stored up so that one can foresee and prepare for future demands and contingencies. This is the conception of the efficiency expert. Thought also has another function, in which reality is not primarily considered, but in which thought contributes to man's inner satisfaction. There is at times a craving for satisfaction and pleasure even at the cost of self-preservation. Who does not sometimes indulge in day dreams and imagination or reverie without respect to outward needs? Everyone is aware of the large part that imaginative make-believe plays in the life of the child; it satisfies a longing for accomplishment with a feeling of power and its exhibition; it requires little effort and pays quick returns. The child with all his material needs supplied does not yet have need for complicated adaptation to the world of reality, but as he grows older the world of fantasy fades and he gradually develops more practical and more efficient attitudes in regard to the real world about him. He must do this if he is to lead a happy, successful life.

Dreams are of such frequent occurrence as to be commonplace. We all know that they come in many guises, but whatever their subject matter, they always leave the impression that they occur in a different world, a world in which the natural laws of cause and effect are suspended. The scenes are gro-

tesque and the sequences strange. When the individual awakes he is apt to feel that it was all quite foreign to his own personality, yet his dreams are the product of the same neural elements and of the same order of mental processes that he uses in his every day activities.

The people of today, members of a cultured civilization, like to convince themselves that they are rational beings; that their thoughts and opinions are logical formations, but close study will show that there is always an undercurrent from earlier sources. These crop up at times, just like poor relations. For example, take fortune telling, palmistry, turning one's chair to change a player's luck, whistling for a wind. We regard them as harmless social amusements but at times we note with surprise how much emotional ardor they engender. It seems possible that the emotional satisfaction that people feel in the rituals of religion owes much to the fact that these ceremonials appeal to a certain primitive element of human nature which was dominant before man reached a civilized state.

We may think as rational beings we can always give good reasons for our actions and behavior, but an impartial observer can always find a powerful controlling influence beneath the surface of personal consciousness. This powerful influence includes attitudes and emotional trends brought with us from early childhood and from earlier experiences, struggles and conflicts of the human race.

Very early, when he became endowed with reasoning powers, man began to try to explain the objects and forces of nature operating around him. He observed objects in motion, trees swayed, leaves rustled, clouds moved across the blue sky and concealed the sun and moon and stars, which themselves appeared to have power of moving from one position to another; his reason told him by analogy that all of these were alive like himself and animated by spirits. Like a child frightened by the dark he peopled the world about him with horrible creatures of his imagination, and called them spirits and ghosts.

Now in the struggle of modern life, when the individual can no longer face his difficulties, or his emotional tension is increased to the exploding point, he discards reason and rational control altogether, and is no longer able to distinguish between reality and the dream. The imagination and fact become hopelessly intermingled and confused; his mental processes revert to more primitive types of thought and motivation.

To illustrate the principle of reversion to a former level of activity, take the case of the young child, already supplied at birth with the suckling reflex, who in many instances resorts to the use of the same mechanism in the habit of thumb sucking as a pleasure-seeking experience. Later on, when the habit has been given up, on occasion when troubled and tearful, the child may be seen to put a finger in the mouth automatically.

When mental activities fail at the level of social efficiency, they slip back into older channels which are manifestly unsuited to maintain the individual in the present day world. The mental condition of many cases of dementia precox has been aptly described as a continuous waking dream state.

After such primitive or archaic modes of reaction come into full sway, all too often, it appears, such mental functioning (distorted as it may seem) still supplies the deep needs and cravings of the soul. It satisfies instinctive yearnings as in the case of the thumb-sucking child, or fascinates the mind as did the fantastic inventions of primitive man. The ego extracts a satisfaction from it that seems at times to make it impossible to again wean the individual from his infantile or archaic world of fantasy, and induce him to place his feet on the solid ground of facts as they are, to take up the struggle with harsh realities. He remembers the aches and pains of his former struggle to maintain himself as a productive and acceptable unit in society. It is this feature of many cases of psychosis, a reluctance to meet the conditions and demands of social existence, which furnishes a most resistant stumbling block in our efforts to rescue the patient and restore him to the position of a social being in community life. Too often, we feel, he has no real desire to be rescued.

In conclusion, the program of mental hygiene must strive primarily to eliminate the special factors mentioned previously that reduce the stability of mental functioning.

The matter of heredity is the consideration of eugenics.

The diseases of the nervous system, the endocrines and the other systems are to be treated by well known methods, preventive and curative.

But I believe the most promising field lies in the prevention of mental disorders through the training and guidance of children to the end that they may develop wholesome and efficient types of conduct that will enable them successfully to meet the varying situations of modern social life.

MALARIAL THERAPY

ANALYSIS OF 209 CASES AT WESTERN STATE
HOSPITAL*

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This paper is an analysis of 209 cases of general paralysis of the insane treated with malaria during the first seven years of its use at Western State Hospital, and is an attempt to classify our results and correlate them with those obtained at other centers.

Malaria is a relatively new therapeutic procedure against paresis, and although first suggested in 1887 by von Jauregg,¹ he himself did not use it until 1917. His results one year later² on original nine cases were so startling that this method of treatment spread rapidly. In 1922 White³ of St. Elizabeth's introduced it into this country. However, it was not until 1927 that, through the efforts of Frank Clancy⁴ of Seattle, an inoculated patient was brought to the Northwest and the treatment introduced here. Since then we have used many different strains. Through the active interest of our Superintendent, W. N. Keller, we have been able to secure individual mosquito cultures sent by mail from Bruce Mayne of the U. S. Public Health Service, stationed at Columbia, South Carolina. This luetic-free inoculation may prove of greater value in therapy.

At the outset every available paretic in the hospital was given malaria, regardless of the stage of the disease, and as facilities were not available for treating a large number of cases at one time, treatment of all these took a few years. Lately we have been treating cases in the earlier stages, but as a rule the majority are well advanced at the time they enter our care. We deal frequently with a lower class of patient and encounter obstacles such as contrary religious beliefs, fanaticism, superstition and hostile skepticism, and these factors, together with an institutional policy of treating no patient with malaria without the consent of the relatives, tend to create adverse conditions under which to institute early and satisfactory therapy. Throughout the work we have not selected our cases, but have taken them as they come, and have often treated patients for which there was very

little hope or as a final resort at the insistence of relatives.

It has been noted that this hospital has been receiving a larger number of paretics than many other centers in the country. Petersen⁵ points out a very interesting explanation, asserting that storm track areas have a prevalence of nervous system syphilis as compared to areas enjoying seasons of more stable barometric pressure. Regardless of the high incidence of the disease in this state, we have inoculated all paretics admitted since malaria was introduced and have included all in this study.

VALUE OF MALARIAL THERAPY

One hundred successive admissions during the years 1917-18, all positively diagnosed as general paralysis of the insane, have been selected as a comparison to the first one hundred paretics treated with malaria at this institution.

Of this first group, sixty-six had died within a year after admission, and the year following eighteen more had succumbed, bringing the total to eighty-four for the first two years. At the end of five years only three were living.

The malarial treated paretics, on the other hand, had only twenty-six deaths for the first year after inoculation, and a total of thirty-one for the first two years, and after five years fifty-seven of them are living (fig. 1).

	1st Yr.	Died 2nd Yr.	2-4 Yrs.	Living After 5 Years
Nonmalarial paretics	66	18	13	3
Malarial treated paretics.....	26	5	12	57

Fig. 1. Showing deaths in the two groups for five years after admission to Western State Hospital.

This alone is sufficient indication for the use of malaria. However, there is more convincing evidence in the living patients of the two groups. The untreated patient continues to live in his delusions of great wealth, sits by himself most of the time, and becomes what is known among ward workers as a "pack rat" (one who picks up everything imaginable and hides it in his clothes). Sooner or later he is taken with seizures of either an apoplectic or epileptic nature. He recovers largely from each one, but is never free from them until finally he is a physical wreck, totally bed-ridden and solely a vegetative organism.

On the contrary, a treated patient soon recovers his general health and muscle tonus, puts on weight, and becomes clean and neat in his habits, is free of any type of seizures, and after a period of tonic and rest usually is ready for some form of occupational therapy.

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From the standpoint of nursing care, the untreated case is a time consuming problem, requiring constant supervision, and because of his rapid deterioration, unclean habits and noisy irritability must be segregated, later requiring general hospital nursing. Needless to say, this necessitates more nurses and greater facilities. The malarial treated patient saves the state much financially because he needs but ordinary supervision and is soon employed at some work.

We are unable to substantiate our clinical result with pathologic evidence, due to the lack of facilities and training. However, Kopeloff and Blackman⁶ found spirochetes in the brains of only six patients treated with malaria out of thirty-nine examined. Of the six, three had died within a month after inoculation, and the spirochetes found in all six were degenerate forms. These men also examined the brains of ten paretics not treated with malaria, and in eight of the ten found an abundance of organisms and very few degenerate forms. They conclude that malaria either destroys the spirochetes, or causes a degenerative change in morphology.

From April, 1927, to April, 1934, we have treated two hundred and nine paretics with malarial therapy. Of this number one hundred and twenty were unimproved, sixty-five were definitely improved, and twenty-four were discharged as recovered (fig. 2).

		Per Cent	Per Cent
Recovered	24	11.5	
Improved	65	31.1	42.6
Unimproved	120	57.4	

Fig. 2. Results of 209 cases treated with malaria.

The unimproved group contains all patients who died during treatment and for two years subsequently, as well as those who showed no definite mental improvement, although physically there was a change for the better. Lack of mental improvement consisted of a retention of delusions, confusion and cloudiness, as well as the inability to comprehend and do simple tasks. Arbitrarily, we have also included in this group all patients who remain unreliable, and to whom no form of ground parole is permitted.

Improved patients are classified as those who presented a definite break in their delusional system, accompanied by comprehension of simple associative suggestion, and acquired an ability to perform duties with reliability. Our group of recovered patients all met the requirement of being discharged from the institution and resuming their former

places in society, all making an excellent adjustment in life (fig. 3).

	Unimproved Per Cent	Improved Per Cent
Previous treatment	23	19
No previous treatment.....	31	27

Fig. 3. Antiluetic therapy prior to malarial treatment received by 120 unimproved cases and 89 improved cases.

I have analyzed all three groups as to previous treatment, method of malarial treatment, number of chills, possible correlation between neurologic, mental and serologic symptoms, duration of symptoms before treatment, serologic results, and post-malarial therapy.

PREVIOUS TREATMENT

The value of previous treatment has been in doubt. This treatment here has consisted of one injection of neoarsphenamine to a full year and one-half of vigorous antiluetic therapy. Many cases had received only four or five injections of arsenicals, but obviously the exact treatment in the majority of cases was not ascertained because of the patient's unreliability. However, 42 per cent of all our cases had some previous treatment, and 58 per cent had none. In the totally improved group, 19 per cent had previous treatment, and 27 per cent had none. On the other hand, of the unimproved group, 23 per cent had previous treatment and 31 per cent had none. The close correlation between those who had received early treatment and the untreated cases is strikingly suggestive that previous therapy has no influence on the improvement of paretics under malarial management.

Zaytsev,⁷ after analyzing one hundred and eighteen cases, has recently stated that previous treatment will not ward off paresis, and he could not find that it even prolonged the incubation period. Other observers have suggested that an insufficient amount of arsenicals merely stimulates the spirochetes rather than destroying them. Clancy⁸ points out that intensive treatment prevents antibody formation and leaves the central nervous system unguarded. He substantiated this by referring to the increase of neurosyphilis.

METHOD OF MALARIAL TREATMENT

Our method of malarial treatment has differed little since its introduction in 1927. We introduce the disease either by intravenous or subcutaneous injections of 5 cc. or less of blood from an infected patient, or using proportionate amounts of mosquito culture subcutaneously. The chills usually appear

6. Kopeloff, N. and Blackman, N.: Spirochetal Findings in Brains of Paretics Treated with Malaria. *Am. J. Psychiat.*, 13:21-31, July, 1933.

7. Zaytsev, A. A.: Factors which Favor Development of General Paresis. *Kazanskeye Medeytsay Nskeye Jurnal*, 29:667, 1934.
8. Clancy, F. J.: Malarial Treatment of Neurosyphilis as Seen in Wagner-Jauregg Clinic. *Northwest Med.*, 26: 427-433, Sept., 1927.

in three to ten days, and the patient's condition is carefully checked as the disease progresses. If his condition permits, we allow twelve chills. The disease is terminated by tridaily five-grain doses of quinine until ninety grains have been given. This usually is sufficient to cure inoculation malaria.

The strain of malaria used, however, has varied from time to time, becoming mixed very quickly with other strains, almost always by double inoculation by different doctors, so that it has been impossible to evaluate the true significance of each, but I wish to point out that sometime during the second and third year's use a new strain of plasmodium was introduced which had a very high mortality rate, and thus increased the group of unimproved cases. This was especially noticeable during the year 1930-31, when improvement receded to 26 per cent as compared to a grand average of 43 per cent. The exact strain giving these results has not been determined. However, Mayne⁹ has pointed out the frequency in which asexual forms of malignant tertian parasites may predominate in cases of this nature.

The number of chills allowed varied from one to twenty-six. Often after a few chills the disease would become quiescent spontaneously, and in these cases reinoculation was as a rule useless. The average number of chills given to two hundred and nine cases was a little better than ten. Strangely enough, the average number received by all three groups of patients amounted to eleven. In the recovered group this amounted to a little more than eleven.

I have also segregated from the above groups those patients who died during treatment. Their average number of chills amounted to only nine. The above findings prove little of value in the way of optimum number of chills necessary to achieve best results, but it does serve to set aside hastily formed opinions that the mortality rate is due to an excessive number of chills.

The symptoms of all patients were closely examined as to nervous, mental and serologic ratings, so as to correlate them if possible with the final results. I could find no such correlation of these symptoms, either individually or collectively.

DURATION OF SYMPTOMS BEFORE TREATMENT

Throughout this study a serious effort has been made to find the reason for exceptional results in one patient and very poor results in the next, although the two may have appeared similar in the

beginning. Close examination of the total duration of symptoms up to the time of first chill reveals one explanation. One hundred and twenty unimproved patients had a total duration of symptoms of almost three years. Sixty-five patients discharged improved had a total duration of one and three-tenths years. However, the group of twenty-four patients who were discharged recovered has an average total duration of symptoms of only eight months (fig. 4). This group was verified from every

		Duration Previous to First Chill
Recovered	24	8 months
Improved	65	1.3 years
Unimproved	221	2.95 years

Fig. 4. Showing the average duration of symptoms up to the first chill of the three classified groups of patients.

possible source. Relatives and friends were interviewed, and questionnaires sent out to determine the earliest change of personality noted in the patient. It was interesting to note in this connection that the longest period of abnormality in this group was two years, while the shortest existed for only two months prior to inoculation, and the majority of the group had symptoms existing from three to six months. These findings indicate that the most reliable guide to prognosis lies in the duration of symptoms preceding malarial inoculation.

SEROLOGIC RESULTS

The serologic status was determined on the sixty-five patients who still remain in the hospital of the original two hundred and nine. Blood Wassermanns, Kahns and complete spinal fluid examinations were taken on every one of this number. These are divided into three groups. Those who retained their original blood and spinal pictures were classified as positive, while those who have only a two-plus Wassermann or Kahn remaining in either the blood or spinal fluid, or whose colloidal gold curve shows remaining figures of three or below are classified as improved, while those who present a negative reaction in both blood and spinal fluid are classified as negative. These results show increasing improvement throughout the eight years, with the exception of the fifth, 1930-31, in which 44.4 per cent still remained positive (fig. 5). It may be recalled that it

Years—	2	3	4	5	6	7	8
Per Cent Negative.....	19	40	33.3	12.2	75	57	57
Per Cent Improved.....	42.8	30	50	44.4	25	45	43
Per Cent Positive.....	38.2	30	16.7	44.4	.....	.....	.....

Fig. 5. Serologic results in the years after malarial therapy in 65 patients remaining in the institution.

was during this particular year that we had our greatest number of fatalities, initiated, I believe, by a contaminating stream of parasite. Our results, however, are comparable with those obtained else-

9. Mayne, B.: Observations in Application of Mosquitoes in Malaria Therapy. Paper read before Pierce County Med. Soc., Fort Steilacoom, Wash., Sept. 20, 1934.

where. White reports 100 per cent total improvement after eight years, while Strecker and Ebaugh¹⁰ report serologic recovery in three to five years, using vigorous postmalarial therapy, and assert they are unable to get permanent negative results without it. Our serologic results are gratifying, when it is considered that they were taken largely from the unimproved group.

POSTMALARIAL THERAPY

Our postmalarial therapy has been very irregular, and the above findings can in no way indicate the value of such treatment (fig. 6). Not every patient

Years—	2	3	4	5	6	7	8
Percentage of							
Total Improvement.....	61.8	70	83.3	56.6	100	100	100

Fig. 6. Total improvement in serology in the years following malarial therapy.

successfully completing his course in malaria received a series of injections, due to the system of taking patients only in restricted groups and completing this group before starting the next. Many patients were overlooked, and received none at all.

The course of treatment has consisted of twelve weekly injections of neoarsphenamine or tryparsamid, twelve weekly injections of bismuth and twelve weekly of mercury, followed by three months rest period. If after this treatment the patient was still in the hospital, one more such course was given. It is during this period of rest that our patients frequently become mixed and are not followed as closely as they should be.

It may be that soon our ideas on this type of therapy may undergo a change, for Hoverson and his workers¹¹ dispense with malaria entirely and use frequent injections of cerebral lipoids supplemented with weekly injections of tryparsamide. With twenty-five patients they report 48 per cent recoveries. As yet, no one has combined malaria with this type of therapy.

CONCLUSIONS

That malaria is indicated in every case of paresis is shown by a comparison of the mortality in untreated cases against that of malarial treated cases. The increase in expectation of life as well as marked physical improvement is sufficient justification for its use.

The total improvement of 43 per cent of patients under malarial treatment in this institution is definitely encouraging and compares favorably with other centers, even though our requirements for the improved classification are slightly more severe.

Previous treatment was found to influence our results in no way whatsoever.

Contaminating strains of malaria increase the mortality rate, delay or permanently retard improvement, and do not adequately destroy the spirochete as shown by continued positive serology.

The optimum number of chills could not be determined from this study.

The duration of symptoms before treatment is the outstanding factor in determining prognosis. It is emphasized that the earlier in the disease the malarial treatment is instituted the more favorable the outcome.

The serology gradually returns to normal after successful treatment and in our study compares favorably with results obtained elsewhere.

DIVERTICULA OF THE
URINARY BLADDER *

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A diverticulum of the bladder is produced by a hernia of the walls of the bladder outward, being assisted by increased intravesical pressure. The opening into the diverticulum is always much smaller than its sac, and gives the effect from the interior of the bladder of an orifice. The exact cause and method of growth is somewhat conjectural. A comparative study of the sexes, ages and pathologic data, however, throws certain light on the subject.

FORMATION

The embrologic viewpoint assumes several weak spots in the walls of the bladder, namely, the site of the urachus in the vertex, and the site of the penetration of the ureters (fig. 1). These are doubt-

		Per cent
A. <i>Location</i>		
Ureteral zone	39	85
Base	4	7
Dome	3	6.5
B. <i>Number</i>		
Single	38	84
Two	4	7
Three or more.....	4	7

Fig. 1. Location and number of diverticular orifices. less important factors, though the diverticulum of urachal origin is indeed rare. On the other hand, 75 to 80 per cent are found posterior to the trigone and adjacent to the ureteral openings, either in the posterior or lateral wall of the bladder.

The structure of the bladder is composed chiefly of muscular fibres, an outer longitudinal, inner circular layer and separate muscle bands of the trigone and sphincter. These muscles are constantly undergoing expansion and contraction, as the bladder

10. Strecker, E. A. and Ebaugh, F. G.: Practical Clinical Psychiatry. P. Blakiston's Son & Co., Inc., Philadelphia, 1931.
11. Hoverson, E. T.: General Paralysis; Nonfever Treatment of Cerebral Lipoids and Tryparsamide. Am. J. Syph. & Neurol., 18:221-231, April, 1934.

* Read before a meeting of North Pacific Surgical Association, Victoria, B. C., Dec. 1, 1933.

slowly fills and rapidly empties. In expanding, the bladder walls often stretch until the actual thickness of the bladder is very slight, containing a small amount of muscle fibres compared to the empty, contracted bladder. The minute or terminal nerve supply of the bladder has not been worked out. From observations of the bladder wall changes in *tabes dorsalis*, namely, marked trabeculation and loss of its contractile power, we see the importance of complete nerve supply of this muscular organ. In those bladders in which diverticula develop, an incomplete nerve supply in the region of the ureteral openings may be suspected. This is advanced as a theory only which has not been demonstrated. Cutting through the muscles of a distended bladder down to the mucosa will produce an immediate hernia at that point.

ROLE OF LOWER URINARY TRACT OBSTRUCTION

Here is the point where obstruction in the urethra

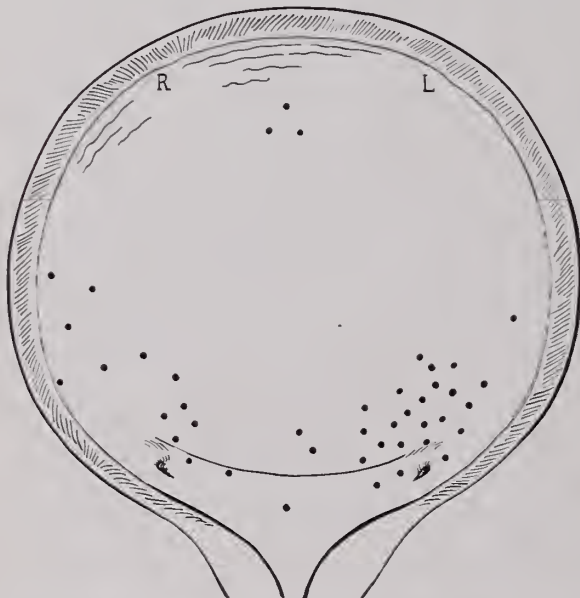


Fig. 2. Location of diverticular arifices in forty-six cases studied.

or at the internal, urethral orifice, from congenital valves, prostatic hypertrophy, contracture and bars plays its role in the production of diverticula (fig. 2). Clinically, by cystoscopy and cystography, each change may be observed, step by step. First, is seen the basket-like trabeculation of the interior of the bladder standing out like cords, then the formation of shallow cellules, with their width greater than or equally as great as their depth. Young was able to watch the development of one of these cellules. By considerably overdistending the bladder, a cellule formed, pushed outward, then flattened out again on reducing the amount of fluid in the bladder.

After these cellules work through the thin or overstretched muscle fibres, their development in the presence of constant, increased vesical pressure is slow but sure. They develop an enormous size at times, holding from 30 to 3000 cubic centimeters of urine. The orifice of a diverticulum often resembles a sphincter, as its size will vary, and from being 1 to 2 cm. in diameter will apparently close as the bladder is emptied. In no sense is it a sphincter, for it has no circular muscles around the opening (fig. 3). This action is produced by the changing size of the bladder and the interlacing muscle fibers through which the diverticulum has developed. (fig. 4).

		Per cent
Urethra	18	40.9
Prostatic hypertrophy	14	30.5
Neck contraction	8	17.4
Cancer of the prostate.....	1	2.2
Vesicle paralysis	1	2.2
Chronic prostatitis	4	8.7
Male	40	87
Female	6	13

Fig. 4. Types of obstruction.

To further support the obstruction premise of the development of diverticula, we have the huge incidence of obstruction, 90 per cent of all cases. The largest proportion occurs in men, due to prostatic hypertrophy, bars and vesical neck contrac-

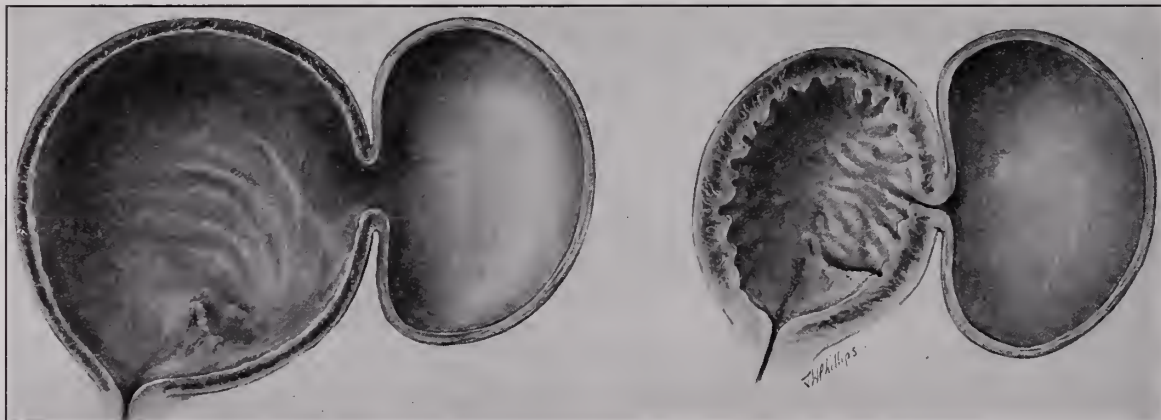


Fig. 3. Bladder and diverticulum, showing action of diverticular orifice.

tures and carcinoma of the prostate, plus the late period of life in which most of them occur; the contractures are most frequent between 50 and 60 years of age, and the prostatics between 60 and 70 years. It is a disease chiefly of the fourth to the seventh decade (fig. 5) and uncommon before those periods. It is found in children, but chiefly in the presence of congenital valve obstruction of the urethra. Kutzman, in a study of 100 cases, says "it was possible nearly always to demonstrate some type of bladder neck or urethral obstruction."

As these diverticula develop, other pathologic changes occur. Most of them retain their urine content after the bladder is emptied. This is due to their small orifice, to their dependent position outside the bladder wall and to the very poor muscle fiber content of their walls. These walls are com-

1-9, 1; 10-9, 1; 20-29, 1; 30-39, 3. Total, 13 per cent. 40-49, 10; 50-59, 10; 60-69, 10; 70-79, 7; 80-89, 1. Total, 87 per cent.

Fig. 5. Ages. Average 54.

posed chiefly of fibrous tissue (fig. 6), even losing their epithelial lining in many cases. They are non-contractile, due to flabby walls or to peridiverticulitis and adhesions to surrounding tissue, as the sigmoid, prostate, vesicles, ureters, vas deferens and

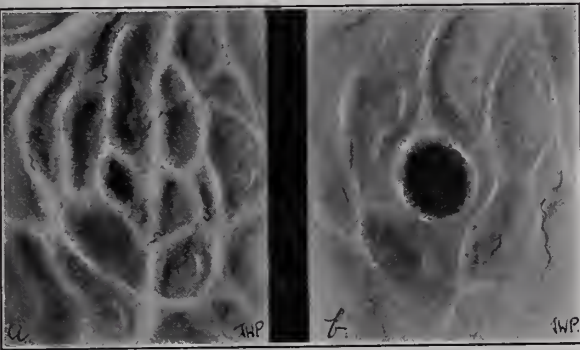


Fig. 6. Orifice of a diverticulum with bladder contracted (a) and expanded (b).

the bony pelvis. The residual urine in them often becomes infected, and may result in ulceration, abscess formation, calculus, tumor growth or a true diverticulitis. Cystograms often picture them as simple sacculations with a narrow neck and easily accessible to surgical removal. Clinical experience soon dispels this illusion.

SYMPTOMS

The symptoms of diverticulitis are many and varied, being chiefly those of obstruction of the lower urinary tract, as increased frequency of urination, dysuria, an embarrassed urinary stream, i.e., lack of force, nocturia, dribbling, burning hematuria, pyuria and pains in the pelvis (fig. 7). In

brief, there are no pathognomonic symptoms. From the patient's description or answers little is often gleaned. It is only by a cystoscopic survey or cystograms that a diagnosis is made. Before these methods were available, most diverticula were seen at the postmortem table.

SUBJECTIVE SYMPTOMS		Per cent
Frequency	34	
Nocturia	39	84
Hematuria	20	43
OBJECTIVE SYMPTOMS		
Trabeculation	39	
Infection	37	80
Residual	22	47
Cancer of diverticulum.....	3	6.5
Calculi in diverticulum.....	3	6.5

Fig. 7. Symptoms of diverticulum.

The incentive of the present presentation is founded on a study of forty-six cases of diverticulosis occurring in the writer's private practice. Apparently, much of the literature is repetition and accepting deductions from early writers, for little has been added to our knowledge of its true cause.

FOUR TYPICAL CASE HISTORIES

Case 1. A shoe cobbler of 69 years of age. His medical history consisted of a severe attack of typhoid fever in his sixteenth year.

For the past several years he has found it very difficult to void. He experiences burning in the urethra, a desire to relieve his bladder every half hour, but passes a small amount of urine which apparently is dyed with blood. The straining incident to micturition has produced hemorrhoids. Due to his broken sleep he has become nervous, weak, lost his appetite and reduced his weight. He has been catheterizing himself for the past two years.

Examination of this man showed malnutrition (14 pounds under his average) normal reflexes, a marked suprapubic dulness and tenderness. Rectal examination palpated a moderately enlarged prostate with the right lobe larger. His systolic, brachial pressure was 140 mm. and diastolic 70 mm. The urine contained a heavy trace of albumin, considerable pus cells, red blood cells and countless motile bacteria. The blood urea nitrogen was 25 mg. per 100 cc. and the creatinin 1.72 mg. per 100 cc.; a two hour phthalein estimation returned 50 per cent of the dye.

Cystoscopy gave further information. Besides the encroaching lobes of the prostate, two large calculi were seen. The mucosa was reddened and bled easily. The residual urine amounted to 250 cubic centimeters. The treatment consisted of a suprapubic cystostomy with removal of the calculi, which weighed 1200 and 900 gr., respectively. One week later, the patient being in good condition, a large intravesical prostate was removed after a capsular dissection. This out of the way, a calculus in a diverticulum was palpated in the base. This stone measured 5x6 cm.; it was soft, foul smelling and for a nucleus contained four broken pieces of rubber catheter. The orifice of the diverticulum was incised toward the prostatic capsule, thus making a large permanent opening and effecting constant drainage. The later results were satisfactory.

Case 2. Dr. Raymond Seth of Seattle referred this preacher who was 73 years of age. Ten years ago he underwent an appendectomy operation. His symptoms were largely urinary. For several years the urinary stream has been weak and slow, with nocturia. Recently, frequency, urgency

and dysuria have become acute. Finally hematuria developed and the patient consented to hospitalization.

This patient was a large, well preserved male. The reflexes were normal. His brachial systolic pressure was 140 mm. and diastolic 90 mm. The abdomen was tender suprapubically. There was present a right rectus, surgical scar and a small umbilical hernia.

A palpating finger in the rectum made out a smooth, moderately enlarged prostate. A small calculus could be felt.

The laboratory data consisted of a negative blood Wassermann, urea nitrogen 24 mg. per 100 cc., creatinin 2.6 mg. per 100 cc., a normal blood count, and a urinalysis with a trace of albumin, loaded with red blood cells, numerous pus cells and motile bacteria.

Observation cystoscopy was made. The residual urine amounted to 140 cubic centimeters and contained blood clots. The bladder mucosa was universally injected and showed several diverticular orifices, from 0.5 to 1.0 cm. in diameter. These were on the lateral walls. A cystogram showed several diverticula and trabeculated walls.

Treatment consisted of a preliminary catheter drainage. A suprapubic cystostomy was done and the larger diverticula (one in the fundus and one in the right lateral wall) were excised extravesically. It is much easier to dissect a bladder the first time it is exposed, so the diverticula were repaired first. The patient was sent home and returned a month later, when the prostate was shelled out through the same incision. The gland weighed 22.5 grams and had undergone considerable shrinkage.

Case 3. This man was a structural steel worker, 41 years of age and referred by Dr. W. C. Teufel of the U. S. Public Health Service, Seattle.

His whole medical history revolves around a gonococcal infection, acquired twenty years ago. First a severe urethritis, recurring discharge, prostatitis, vesiculitis, generalized arthritis and urethral stricture. The latter became acute six months ago. Partial retention, pyuria, dribbling, frequency and marked dysuria. A perineal abscess was incised, creating a urethral fistula; next an external urethrotomy was performed. Later, sounds were passed with difficulty. Severe hemorrhage in the bladder took place, requiring a cystostomy. Two diverticula were found at this time and an attempt was made to dissect them out. Urine drained through the perineum and suprapubic sinus.

An examination of this man shows fair nourishment. The abdomen is marked by a recent cystostomy wound which is still draining. The perineum also contains a sinus which stains the dressings with urine and pus. A No. 24, French sound was passed easily into the bladder.

Cystoscopy demonstrated edema of the vesical outlet, with two diverticula openings, one on either lateral wall.

Cystograms were made. A small, rounded diverticulum appears on the right side and a larger, double diverticulum is on the left wall. Treatment consisted in exposing the left diverticulum extravesically. A horizontal or transverse septum was found, giving this cavity a dumb-bell shape. The wall was removed and the bladder united from its outer surface. Both suprapubic and perineal wounds are now healed.

Case 4. This patient again illustrates the effect of urethral stricture on the development of diverticula. He was a shingle weaver, 56 years of age.

His real medical history started with a gonococcal infection thirty years ago. The urethral symptoms extended over months. He developed arthritis, first of the right hip, the right ankle, then the left ankle and heel. For the past five years urethral stricture has given him much discomfort and trouble. Three years ago, internal urethrotomy was performed. Sounds have been passed at irregular intervals. There are frequency and pyuria at present.

Examination of this patient was interesting, chiefly urologically. His nutrition was good. The brachial systolic pressure was 138 mm. and diastolic 90 mm. The anterior urethra was granular and sclerotic with a No. 24, French bougie-a-boule. The same caliber sound was passed into the bladder with difficulty. There were 30 cubic centimeters of residual urine. The urine was turbid, and contained pus cells, extracellular diplococci and many colon-like bacilli. The prostate and seminal vesicles were enlarged and indurated.

Cystoscopic examination was made. The walls of the bladder were trabeculated and contained cellulites. The orifice of a diverticulum was seen to the median side of the left ureteral orifice. There was some prominence of the lateral prostatic lobes.

A cystogram demonstrated a ball-like diverticulum of the left, lateral wall. This patient disappeared and no treatment was given him.

DIAGNOSIS

The first step is to determine the character and location of the obstruction. This is done by calibrating the urethra and making a direct observation of the bladder by means of a cystoscope. Even then the small orifice of a diverticulum may be overlooked. Cystograms are most valuable in the diagnosis, first with a contrast solution in the bladder, then voided. This leaves the diverticulum filled and the bladder empty (fig. 8).



Fig. 8. Shows diverticulum filled and bladder empty.

Other symptoms which should always be thoroughly investigated are hematuria and pyuria, both common phenomena in diverticula.

TREATMENT

The correction of this condition is a problem in judgment, for obviously the only remedy is surgical excision. The obstruction should be removed, whether it be a stricture of the urethra or bladder neck obstruction. When hematuria, marked infection or calculi are present in the diverticulum, excision is advisable. If no severe symptoms are present or the patient's general condition is poor, relief-

ing the urethral obstruction may prove sufficient. The results of excision of the diverticulum are not always perfect. The sac may be removed, but an old fixed cavity still remains.

SUMMARY

1. Weak spots in the bladder wall, where diverticula develop, are congenital.
2. Development of diverticula is due to obstruction of the urethra or internal urethral orifice.
3. Stricture of the urethra heads the list of obstructions, with prostatic obstruction second.
4. Diverticulum of the bladder is most frequent in the male (87 per cent), due to the greater hazard of obstruction from stricture and prostatic hypertrophy.
5. While this disease has been seen in all ages, it is most common after the third decade (87 per cent). The average age is 54 years.
6. Most of the diverticula occur singly (84 per cent).
7. The most serious symptoms are infection (80 per cent) and hematuria (43 per cent).
8. Ten per cent of all patients with prostatic obstruction have a diverticulum present.

MANAGEMENT OF ACUTE PERITONITIS *

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Peritonitis is an old subject. There are few men in our profession who have not had some experience with it and probably fewer who have not some definite opinions about it. The literature on the subject is tremendous. Yet, in spite of all the time and thought so far devoted to it, peritonitis remains as the supreme threat of abdominal disease.

A discussion of the treatment of this disease logically begins with an analysis of its etiology and prevention and takes into consideration the mortality entailed by mistakes in diagnosis, errors in technic and breaches in surgical judgment. This occasion, however, will not permit a presentation of that phase of my subject, although it is important. Nor will it allow me to undertake an appraisal of vaccines or the more interesting pharmaceutical preparations which are being offered. This paper is to be devoted to an analysis of the treatment of that constantly changing set of phenomena which makes up the clinical picture of pyogenic infection of the peritoneum. It will attempt to show that peritonitis nearly always presents certain major features which follow one another in a definite sequence. It will attempt to show that, when

those features guide us and govern therapy, treatment is most effective.

CHARACTERISTICS

The characteristics and important clinical manifestations of this disease change constantly from the time the bacteria first begin to grow until recovery takes place or until the individual succumbs to the infection. Peritonitis is essentially a toxemia. In the early stages this is bacterial in origin. Later, as the coils of the bowel become more inflamed, distention begins. This increase in the diameter is always associated with a marked increase in the length of the small bowel until finally it is crowded into a series of loops which extend transversely across the abdomen one above the other. The kinks which occur at each end of each of these loops are so acute that each one of them constitutes a mechanical obstruction to fecal flow.

When such a state is reached the patient, already profoundly toxic from peritoneal absorption, is flooded with a toxemia originating in the numerous segments of obstructed bowel. This combined toxemia usually is lethal. This is simply another way of saying that treatment of peritonitis consists essentially in preventing an ileus if we can, and treat it if we have to. Or better still, it consists in treating the toxemia of the peritonitis in such a way that the patient will be spared the necessity of enduring the toxemia of obstruction.

PREVENTION OF ILEUS

The toxemia of peritonitis has features which are peculiarly its own. It is frequently associated with some shock and usually with considerable abdominal pain. Nausea or vomiting is produced by the peritoneal irritation and adds seriously to the mental anguish of the patient. These symptoms make rest a tremendously important factor. Mental and physical rest must be provided by the judicious use of morphine, codeine and barbituric acid derivatives. There is nothing in the management of these cases which is surer to exhaust the resources of the patient than to force him to go without rest and to tolerate pain. It is a needless dissipation of energy. The use of morphine in peritonitis is still frequently debated. Those who condemn its use do so because they fear it may produce an occasional habitue, or because they feel that it predisposes to paralytic ileus. My time will not permit a detailed consideration of this matter but a few facts must be recorded.

In the first place, we must remember that most of our drugs are capable of doing some harm. As physicians we must decide whether the harm which

* Read before a meeting of Eastern Oregon Medical Society, Pendleton, Ore., June 30, 1934.

they will do in a specific case equals or exceeds the good to be expected. Morphine does not paralyze the bowel as it was once thought to do. Authorities are quite well agreed now that it stimulates segmentation and tends to maintain tone but does not increase the propulsive type of bowel activity. In peritonitis we are anxious to maintain bowel tone and equally anxious to prevent propulsive peristalsis for such activity spreads infection and exhausts bowel muscle.

So in peritonitis we do not hesitate to use morphine and codeine freely, for their undesirable effects are of little consequence compared to the blighting effect of pain and sleeplessness. Sodium phenobarbital (sodium luminol) in two grain doses given hypodermically will insure rest in most cases, and as a result less morphine and codeine will be required to relieve the pain. Dilaudid may eventually prove to be a more desirable drug than either morphine or codeine in these cases.

Hot packs covering the entire abdomen add considerably to the comfort of these patients and theoretically should aid them in gaining control of the peritonitis. Experience seems to show that Fowler's position is beneficial. It probably aids these patients to localize the infection in the pelvis, even though it does not confine it there as it was thought when the measure was introduced to our profession.

It is not difficult to prove that increased peristalsis increases the danger from an existing peritonitis. This point is supported by an abundance of experimental work and clinical evidence. That being true, food and fluid should never be given by mouth when a patient is contending with a serious or uncontrolled peritonitis. We should not wait until our patients are vomiting from pain or from distention before we stop feeding them by mouth. It is too late then, the harm has been done. When food and fluid are taken into the stomach they stimulate peristalsis and this spreads the infection in the peritoneal cavity and increases the rate of absorption. These things tend to fatigue the bowel and in that way to court distention.

Food and fluid should be given intravenously, subcutaneously and rectally, but never orally until the patient has spontaneously restored peristalsis. It is not difficult to maintain patients by parenteral feeding. We have sustained them for four and five weeks in this way. In acute peritonitis it usually is not advisable to rely on rectal absorption. It is too uncertain. Hypodermoclysis and phleboclysis meet the threefold demand which these patients make in a more efficient way.

When a patient is not receiving carbohydrate by mouth he will develop a ketosis very rapidly, especially if he has the elevation in temperature which we always find in the presence of acute peritonitis. That ketosis must be combated by dextrose either subcutaneously or intravenously. When it is provided in adequate quantities, bowel distention is less likely to develop. Bowel muscles require food and when starved invariably become fatigued and relax.

Most adult patients with acute peritonitis will tolerate 750 or 1000 cc. of 5 per cent dextrose intravenously every eight hours, if it is given slowly. If they have been vomiting and are dehydrated, they will require an additional liter or two of physiologic solution of sodium chloride subcutaneously. We aim to combat thirst by dextrose solutions and maintain the chloride reserve by an adequate quantity of salt solution. The pulse and temperature of the patient as well as the temperature of the room aid in deciding the amount of fluid our patient needs. If he complains of thirst, he needs more fluid.

These patients should excrete at least a liter of urine every twenty-four hours. The fluid requirements of surgical cases can be determined most accurately by computing the fluid lost daily as urine, drainage and gastric aspiration. This total should rarely be augmented by more than 1000 cc. in twenty-four hours. We can give these patients too much fluid and by that very means induce an ileus.

If food and fluid by mouth are contraindicated in the presence of active peritonitis, certainly that group of bowel stimulants, of which eserine, pituitrin and hypertonic saline are the most effective representatives, must be interdicted. And we might add in this connection that pitressin, which is the pressor and antidiuretic principle of the posterior lobe of the pituitary body, should not be used in peritonitis unless a more rational indication can be provided than we have had so far. Fortunately there are few men now who will give a physic in the presence of a peritonitis. However, the hypodermic use of the group of drugs just enumerated is a common practice. It is unfortunate. Such therapy is unsound. It is unphysiologic and pernicious.

These drugs are harmful because they whip up peristalsis and spread the peritonitis and because, if they work at all, they fatigue the musculature of the small bowel and in that way tend to induce an ileus. We should never lose sight of the fact that a small bowel probably does not become distended until its muscles begin to fatigue. There is

no more reason for stimulating peristalsis in cases with a beginning or an impending bowel distention than there is for insisting that patients with decompensated hearts indulge in strenuous exercise. The essential element in both instances is muscle fatigue. Tired muscles recover most rapidly when they are given rest.

Even though we exert ourselves to provide these patients with parenteral food and fluid, put them in Fowler's position, hot pack their abdomens and insure them rest and comfort, some of them unfortunately begin to vomit. They stop passing gas rectally and gradually become distended. These are ominous signs. Their management challenges our courage and taxes our surgical judgment.

PATHOLOGIC PHYSIOLOGY OF DISTENTION

If we are to be intelligent in the management of these cases of impending or beginning distention, we will have to inquire into the pathologic physiology which initiates the process. The insult to the peritoneum undoubtedly induces impulses which in some way disturb the sympathetic parasympathetic balance and contribute to bowel distention. In addition to this disturbance infection involving the peritoneum of the small bowel, like infection elsewhere, causes hyperemia and an associated edema.

Edema of the small bowel probably reduces the rate with which the toxins in the peritoneal cavity are absorbed and to that extent is beneficial. Unfortunately, however, it sets into action a series of injurious processes. It increases the rate with which gases and secretions are poured into the small bowel. It splints the bowel just as it splints an extremity and renders it less capable of functioning. It interferes with the nutrition of the bowel and materially reduces its endurance. As a result of this decreased ability to work, secretions are not passed down into the part of the bowel which is normally designed to absorb them. And, what is just as important, edema involving the distal part of the small bowel decreases its ability to absorb these gases and secretions. These processes all make for distention. This is a serious complication of peritoneal infection. Its treatment revolves around four fundamental considerations.

GASTRIC ASPIRATION

Stomach lavage, or better still an indwelling Levin duodenal tube which works by siphonage and suction combined, will pump out the fluid which is being poured into the upper end of the small bowel and regurgitated into the stomach. It will also suck out the gas which accumulates and which, adding to the bowel distention, increases the rate with

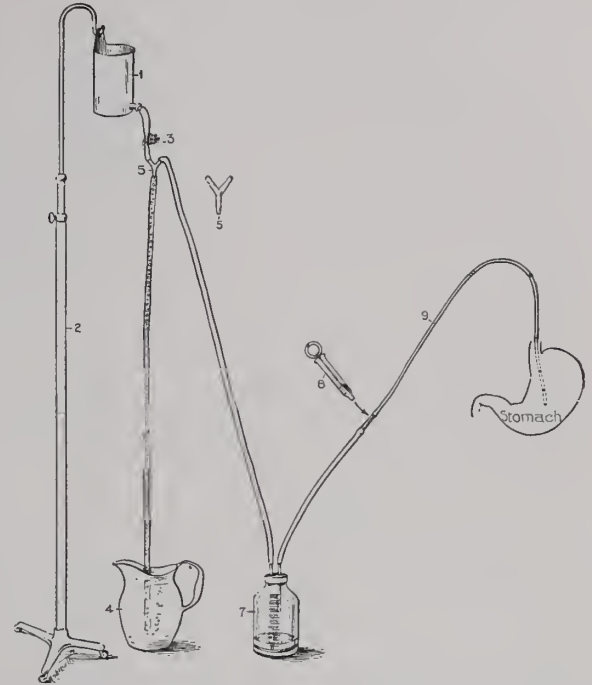


Fig. 1. An enema can (1) is suspended about six feet from the floor by a stand (2). A screw-clamp (3) makes it possible to regulate the rate with which the water drips into the pitcher (4). The inside measurement of the tubing which leads from the glass Y connection (5) to the pitcher must not be greater than one eighth of an inch. Otherwise a drop of water will not completely fill it as it passes down. An empty Don Baxter Intravenous Dextrose bottle makes an ideal container (7) and is already provided with a tightly fitted cork which has two holes in it. The Levin tube (9) can be disconnected in case it becomes plugged and a syringe (8) applied with which to wash it out.

The space which intervenes between the drops of water as they pass from the Y (5) into the pitcher (4) is filled with gas or air which is drawn out of the bottle (7). If the connections are air tight, a vacuum is rapidly produced in (7) and as a result gases and fluids are drawn out of the stomach.

The advantages of this pump are numerous: (a) The character and quantity of the material removed from the stomach can be determined. (b) When the pump is idle because the water has run through, the siphon action in the Levin tube will continue to drain the stomach. (c) Most of the apparatus is never soiled by gastric contents. (d) The water can be used repeatedly. It is necessary simply to pour it from the pitcher into the can. (e) The apparatus is not costly, for it is made from material which is always available in hospitals.

which secretions accumulate within it. This type of stomach aspiration should be continued as long as it is productive, sometimes as long as three weeks. These patients frequently insist on having it long after their attending physician thinks it can be removed safely.

During the early stages of peritonitis we wish to avoid stimulating peristalsis. However, once these patients begin to regurgitate, gastric lavage does not seem to provoke an increase in peristalsis and, since it is very refreshing, we usually allow them to drink freely with the tube in place, so that the fluid immediately returns through the siphon. The Levin tube seems to be tolerated a little better when it is passed through the nose. It is our most effective means of reducing distention in the upper part of the gastrointestinal tract (fig. 1).

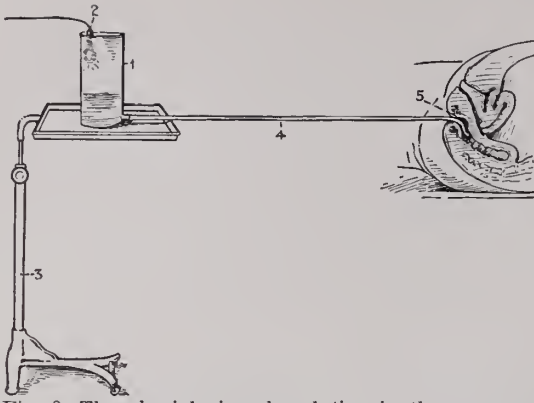


Fig. 2. The physiologic salt solution in the enema can (1) is kept warm by an electric light (2) which is suspended just above it. The stand (3) is set so that the fluid level in the can is about four or five inches higher than the patient's rectum (5). The rectal tube (4) allows the solution to fill the rectum and permits gas to escape.

REPLACEMENT THERAPY

It is important to measure the fluid aspirated from the stomach, for it is a valuable indication as to the progress the disease is making and should guide us in the replacement therapy which must be instituted. This therapy consists in providing the patient with normal salt solution in quantities which will prevent a reduction in body chlorides and incidentally prevent alkalosis. Blood chloride determinations are rarely needed, for patients receiving from one to two liters of normal saline solution daily rarely have a demonstrable reduction in plasma chlorides.

RETURN FLOW

The third procedure of proven value in the management of distention resulting from peritonitis is the rectal tube, or better the return flow. I prefer a physiologic salt solution in the return flow can. This is not irritating and aids these patients in passing flatus (fig. 2).

ENTEROSTOMY

Having drained the gastrointestinal tract through the mouth and rectum, and having provided food and salt and water in adequate quantities, there remains but one procedure to be considered. That is enterostomy. We approach the subject with trepidation. Its value has been debated by our best authorities since the procedure was introduced. Its status in selected cases of intestinal obstruction is sounder than it is in the distention which develops in the terminal stages of peritonitis. In fact, some of our greatest authorities say that it has no place in the treatment of the infected peritoneum. Other men of equal repute are less emphatic in their condemnation and many are willing to concede that occasionally it makes it possible to save lives which would otherwise be lost. You know, of course, that

there are a few surgeons who use it routinely in the presence of a peritoneal infection. This seems to be an indiscriminate and injudicious use of the operation.

The disadvantages of enterostomy in distention which has developed as a terminal complication of peritonitis are several. There is danger that the omentum and bowel will not adhere to the abdominal wall and as a result leakage may occur with additional soiling of the peritoneum. Sometimes stubborn fistulae result with extensive excoriation and ultimately a serious depletion of the patient's mineral reserve and body fluids. The most fundamental objection to the procedure, however, is the fact that it drains but one of the many distended loops of bowel. The remaining loops are not unloaded, either because the operation has been delayed until all peristalsis has ceased or because the peritonitis has produced adhesions which have sealed the loops of bowel to each other in such a way that the obstruction which has been produced at each end of each loop remains a complete mechanical obstruction to fecal flow.

The clinical value of enterostomy in acute peritonitis is difficult to determine. Statistics are inadequate. Its most enthusiastic advocates alone are the ones who use the operation often enough to make it possible for us to evaluate it in figures. The sounder men in our profession have not been resorting to it frequently and so are not inclined to point to it as a procedure of established value.

If fatal cases of peritonitis are observed during the eleventh hour of their disease, it will be found that there comes a time in each when oral and rectal drainage are apparently no longer effective. Action in the entire gastrointestinal tract seems to die out. A stethoscope applied to the abdomen usually will confirm this impression. The metallic tinkle which could be heard earlier and which indicated motor activity in the distended small bowel becomes less frequent and less audible until it disappears altogether. Now distention, which cannot be reduced by efficient oral and rectal means, may in a certain percentage of cases respond to enterostomy. When a loop of bowel becomes distended beyond a certain point it is known that no stimulation, not even direct electric stimulation, will provoke peristaltic action. However, if such a loop is drained and immediately stimulated it will frequently be found capable of contracting.

In this connection it is well for us to remember that, even though these patients have had no food

or fluid by mouth for days and have vomited repeatedly, when they are examined in operating room or in the morgue, the upper part of the small bowel is always distended more than the lower. If, however, they have had efficient oral and rectal drainage, we do not usually find much distention of the jejunum or the colon. It is the lower part of the ileum which is not properly drained. This evidence suggests that, if we were to do enterostomies in these otherwise hopeless cases, we might save a few of them. Certainly if we were to drain one or two or even more of these loops, and in that way render them capable of resuming their function, we would in a percentage of cases relieve a vicious circle to a point where the Levin tube and the return flow would again become effective. If this most heroic effort fails, those who condemn enterostomy in the presence of infection should deal kindly with us, for no harm will have been done.

CONCLUSIONS

1. Patients with peritonitis must be insured rest and comfort by the judicious use of morphine, codeine and the barbituric acid derivatives.

2. Food and fluid by mouth should be forbidden from the time the patient is seen first until peristalsis has been restored spontaneously.

3. Fowler's position and hot packs to the abdomen are helpful.

4. Dextrose, salt and water must be given intravenously and subcutaneously in adequate quantities.

5. When distention accompanied by vomiting begins, the Levin tube should be introduced so that the gases and fluid which are regurgitated into the stomach can be withdrawn as fast as reverse peristalsis brings them up from the distal gut. This tube should be used as long as it is productive.

6. Feces and flatus can be removed most effectively from the lower bowl by the use of the return flow. When normal saline is used for this purpose, it is tolerated more readily and usually can be used until peristalsis returns.

7. Peritonitis is a formidable disease and frequently we are unable to cope with it, even though our efforts are directed most wisely. In these cases bowel activity gradually subsides and distention increases apace. All treatment seems inadequate. Under such circumstances enterostomy, even though it seems to offer but little, should be done before we conclude that our obligation to our patient has been met in full.

PREVENTION OF POSTOPERATIVE COMPLICATIONS

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The past three decades have seen miraculous changes occur in all lines of scientific endeavor. This is particularly true of all general surgical procedures. Not only have better and more efficient methods of diagnosis and radical changes in actual surgical technic lowered the mortality and morbidity rate, but a consideration of preoperative preparation and prophylaxis against complications which may follow has truly revolutionized major surgical procedures. Thirty years ago no consideration was given to chemistry of the blood, the changes which occur, following extensive tissue insult and the administration of inhalation anesthesia. Loss of body fluids and depletion of the chlorides were given no thought.

It was for the biochemist and the physiologist to open new fields for the general surgeon. Previous to the late war, shock was one of those things which, like Topsy, "just happened," and the mortality rate was appalling. The discovery of insulin has allowed major surgical operations on diabetics where heretofore death was almost certain. Operations on jaundiced patients were quite likely to end in disaster due to hemorrhage, until it was shown that the intravenous administration of calcium chloride and transfusions of whole blood previous to the operations made surgery a safe procedure. Until recent years operations on the large bowel were fraught with a long chain of complications, ranging from peritonitis to parotitis until we learned to properly prepare these unfortunate people for surgery. The use of oxygen tents in threatened pneumonia has lowered the death rate of that dreaded complication enormously.

Far too many surgeons, both good and otherwise, after deciding on the date for the operation instruct the patient to take a cathartic and report to the hospital on the evening prior to operation next morning. Nothing has been done about building up his glucose reserve or maintaining his fluid balance; in fact, he has been partially depleted of fluids through catharsis, a particularly pernicious practice. During and immediately following a general anesthetic the liver and muscles are called upon to release their stores of glycogen. Consequently, I instruct my patients several days previous to operation to take large quantities of sugar in concentrated form, preferably honey. If they

prefer they may take several bars of milk chocolate each day. This practice is particularly valuable in those cases having definite liver damage. Kidney function tests and urea nitrogen determinations should be made on those patients whose urine findings warrant it, on those being prepared for operations on the urinary tract and on hypertensive cases. Following this line of thought, steps may be taken to avoid those complications concomitant with nitrogen retention.

I consider preoperative care of the oral cavity extremely important, not so much the matter of root abscesses or cavities as pyorrheal condition. Material from a draining pocket is easily insufflated and increases the likelihood of postoperative pulmonary complication. Even though there is no evidence of such an infection, the patient should be instructed to pay particular attention to oral hygiene during the several days prior to operation. A stiff toothbrush and a 50 per cent solution of hydrogen peroxide or Dobell's solution is recommended.

The incidence of postoperative phlebitis in general surgical practice is approximately 2 per cent. The injection of varicocities of the legs before operation is a matter of extreme importance. Phlebitis in a normal leg occurs frequently enough, and to neglect a mass of varicose veins in a prospective surgical patient is to court disaster. Many cases of postoperative pulmonary embolism have been traced to fibrin clots from varicose veins of the legs.

Building up the fluid reserve should begin several days previous to operation. I instruct my patients to take a minimum of 3,000 cc. of fluids each twenty-four hours for at least three days prior to operation. The old notion of drastic catharsis the night before operation is to be strongly condemned. There is no scientific basis for sweeping the intestine free of its contents and depleting the fluid reserve. Certainly, the bowel should be as nearly empty as possible, but this is best secured with enemas and small doses of some mild laxative.

Preoperative hypnosis is only a modification of Crile's anoci theory which was instituted at his clinic several years ago. Patients, if apprehensive and frightened, are definitely poorer risks than those who go to the operating room calmly and without fear and dread. I believe it is extremely essential for the majority of cases to secure adequate sound sleep the night previous to operation. The advent of the barbiturates, particularly sodium amytal, has greatly simplified this problem. It is my

custom to give six grains of sodium amytal by mouth at 8 p.m. previous to operation and either three or six grains again at 6 a.m. before surgery. This is fortified with the usual narcotic thirty minutes before surgery. The use of barbiturates in preparing the hyperthyroid case for operation is particularly advantageous in that it banishes fear and nervousness, and one is usually able to complete the operation under local infiltration alone.

Care of the patient during the operation may mean a quick, uneventful recovery or a series of distressing complications. One thing which I think deserves merit is the placing of a firm felt pad beneath the lumbar region to combat postoperative backache. Proper Trendelenburg position, i.e., having the shoulder supports far enough downward so that there is no pressure on the popliteal space, may help to forestall a phlebitis. The nurse should be instructed to place a warm soft blanket across the patient's chest beneath the surgical gown. This obviates any chilling which frequently occurs if he perspires a great deal. A patient should never be moved from the surgery until he is well covered with a doubled, heated, all wool blanket.

There are several points which might be mentioned as measures in the prevention of postoperative adhesions. Masson uses large sheets of rubber dam interposed between the intestines and the gauze packs, the theory being that harsh gauze promotes exudate and adhesions. By the same token the intestine should never be handled or brushed with dry gauze. I have used sterile amniotic fluid in the abdominal cavity of those cases in which I feared postoperative adhesions and in those showing any degree of inflammatory change. Amfetin (Lilly) poured into the peritoneal cavity at the close of the operation has in a number of cases given gratifying results in that the postoperative distention is less and the usual postoperative shock from tissue insult is lessened. I have used it recently in a case of extensive pelvic inflammatory disease with adhesions involving all the pelvic viscera. The patient had only a slight rise in temperature following operation and no distention whatever.

Among the measures which may be instituted to prevent shock during an operation are (1) minimum trauma to tissue; a tissue should never be torn when it can be cut to obtain the same results. Gentle sponging, careful manipulation and elimination of unnecessary handling are essential. Fascia should be dissected away, not stripped off with a

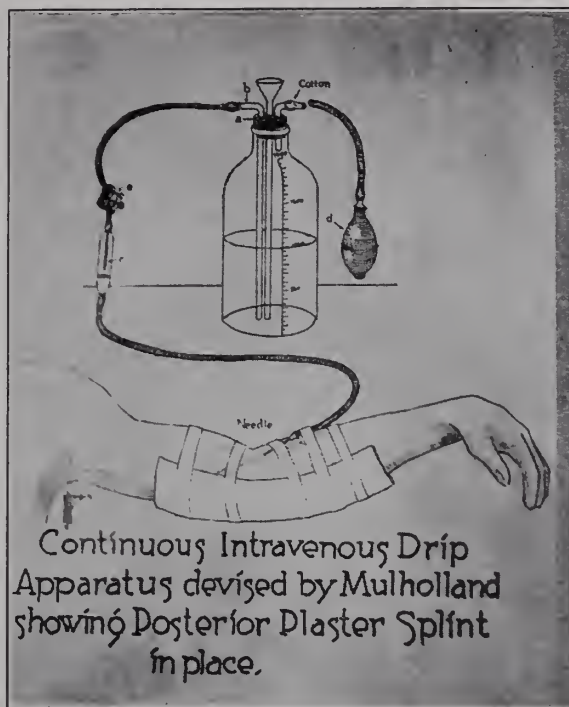


Fig. 1.

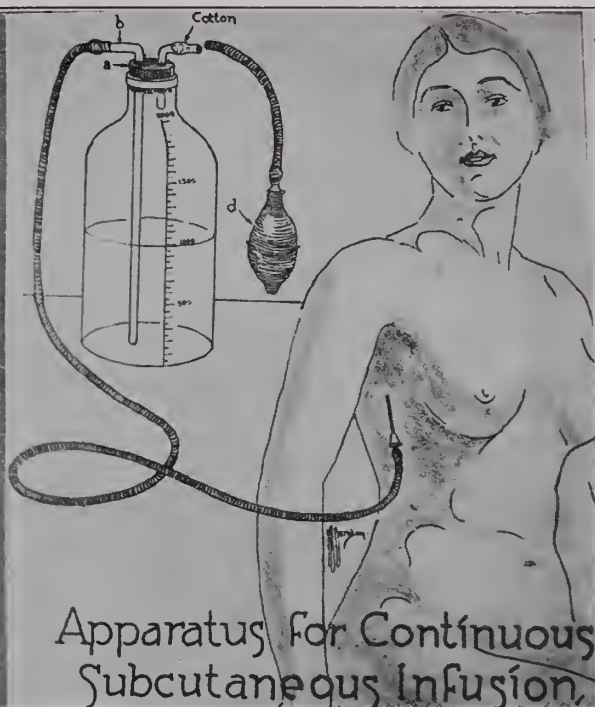


Fig. 2.

sponge; adhesions should be clamped and ligated, not broken up with a finger. (2) Wherever possible I attempt to block the nerves with novocaine. This prevents the transference of impulses from the traumatized areas to the cortex. (3) Maintenance of fluid reserve by subcutaneous or intravenous infusion. Should the blood pressure start dropping from blood loss or profound shock, solutions of gum acacia or isotonic sodium chloride with or without glucose should be started at once unless a donor can be secured immediately.

Proper hemostasis while closing the incision means avoidance of postoperative collections of serum, possible reactions from absorption and hematoma in the tissues with resultant infection. I recently performed a secondary amputation at midhigh following a traumatic amputation; a recurrent branch of the femoral artery could not be secured and packing was necessary. This resulted in a large collection of serum in the wound, and the temperature of the patient remained between 102° and 104° until the packing was removed, allowing the serum to escape, after which it immediately dropped to normal. Continued fever following uncomplicated abdominal operations can frequently be explained by cutting a stitch and releasing a collection of serum or liquefied clot beneath the fascia.

Hyperventilation of the respiratory apparatus

by the use of carbon dioxide and oxygen no doubt reduces the incidence of postoperative atelectasis and collapse of the lung, but the anesthetist should be cautioned regarding two points. (1) Never start the inhalations until after the peritoneum is completely closed, otherwise the operator will experience a certain amount of difficulty, and (2) stop the inhalations immediately when the patient resumes deep, regular respirations, otherwise damage to air vesicles may occur.

I believe the one most important thing in the care of the average patient during the first twenty-four hours following operation is the introduction of abundant fluids. He has been dehydrated by fluid restriction the night before operation, by perspiring profusely, and possibly by having lost considerable blood during operation. Particularly in urologic cases where uremia is the dreaded complication the minimum daily fluid intake should be 3,000 cc. given by rectum, hyperdermoclysis or intravenously. There is no valid excuse for not giving any patient abundant fluids following operation. Continuous intravenous drip can be satisfactorily given, if a light posterior plaster splint be applied to the arm and elbow before the patient leaves the operating room or immediately after (fig. 1); this prevents his bending the elbow yet allows free motion of the shoulder and wrist and furnishes a firm object to fasten the tubing and needle to. Continuous sub-

cutaneous infusion apparatus may be prepared similarly by replacing the glass funnel by a clamp and omitting the Murphy drip bulb (fig. 2). I have found that proctoclysis is best retained by adding three grains of sodium amytal to each quart of solution. This is usually sufficient to keep the average patient quiet enough to favor absorption of the water. Restlessness certainly does not promote absorption of fluids by rectum.

The chemistry of the blood should be checked frequently in cases of jaundice, postoperative prostate and kidney cases, and in those in which there has been great fluid loss. Fatalities due to acidosis and alkalosis may be forestalled by determining the CO_2 combining power of the blood.

The oxygen tent has proved invaluable in preventing chest complications following operation. Cyanosis of the nails, increased respirations and mucus in the throat are definite indications for use of the oxygen tent, even before physical findings have appeared in the chest. I prefer to remove the tent gradually when it has accomplished its purpose rather than discontinuing it suddenly.

Parotitis is a dangerous and disconcerting complication, particularly following operations on the bowel or during their preparation for operation, during which time the oral intake is limited. Rankin and Bagen struck on the idea of having the patient suck on an unsweetened lemon frequently to stimulate the flow of saliva. Chewing gum accomplishes the same purpose. Applications of radium have proved the most satisfactory method of treatment once the process has become established.

The treatment of postoperative distention begins with its prophylaxis. As stated previously, a point which I particularly wish to stress, extreme gentleness in handling the abdominal viscera is of foremost importance. Purgatives, both before and after operation, cause distention. Parenteral administration of fluids rather than early sips by mouth will keep the bowel quiet and avoid accumulations of gas. When fluids are started by mouth it is always advisable to give the water or tea hot instead of cold. This idea was probably promoted by DaCosta who taught his interns to order "hot black tea given with a wooden spoon," due, of course, to the fact that the mouth is intolerant of hot metal or glass, whereas wood is a nonconductor. Ochsner has used Ringer's solution with great success in combatting distention. I believe the return flow proctoclysis in the hands of an experienced nurse will relieve the ordinary stubborn case of postoperative distention more satisfactorily than any other procedure.

Preparation of the patient for operation should really begin days or weeks before he goes to surgery. In my opinion the prophylaxis against postoperative complications may best be divided into three fairly distinct stages.

I. Preoperative preparation.

A. Blood chemistry.

1. Building up sugar reserve.
2. Attention to kidney function.
3. Care of jaundiced patients.

B. Elimination of foci.

1. Care of oral cavity.
2. Varicose veins.

C. Fluid reserve.

1. Large quantities of water.
2. Cathartics contraindicated.

D. Preoperative hypnosis.

1. Particularly in thyroid cases.
2. Barbiturates the choice.

II. Precautions during operation.

A. Position of patient on table.

1. Lumbar pad.
2. Disposal of arms.
3. Proper Trendelenburg.

B. Measures to prevent chilling.

C. Prevention of postoperative adhesions.

D. Measures to prevent shock.

1. Minimize trauma to tissues.
2. Nerve blocking.
3. Maintain fluid reserve.
4. Adequate control of bleeding.

E. Proper hemostasis.

1. Prevents collection of serum.
2. P.O. reaction from serum.

F. Hyperventilation with CO_2 plus O_2 .

III. Immediate postoperative care.

A. Maintain fluid reserve.

1. Subcutaneous.
2. Continuous intravenous drip.
3. Proctoclysis. Various solutions, normal saline most easily absorbed.

B. Attention to blood chemistry.

C. Use of oxygen to forestall chest complications.

D. Prevention of parotitis.

E. Postoperative distention.

ANESTHESIA FOR CHILDBIRTH*

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The urgency for relief of pain is in direct proportion to the severity of pain in the average individual. From the standpoint of the anesthetist, the duration of the period of labor as well as the severity of the pain is an important factor in the choice of anesthetic agent or methods to be employed. The physical condition of the patient also is a most important factor in determining how the pain should be relieved, as certain diseases or conditions may

* From Section on Anesthesia, The Mayo Clinic.

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contraindicate the use of the agent or method that might otherwise be used; for example, in operative obstetrics the problem of anesthesia is easier than in normal labor because there is a wider choice of agents and methods, mainly for the reason that the duration of pain is shortened in the operative case, whereas in normal labor the period of duration is uncertain.

The pharmacologic properties of the several available anesthetic agents determine to a large extent their usefulness in obstetric procedures, during which analgesia as well as anesthesia must be accomplished in controlling a variety of pains. The character of respiration during anesthesia or analgesia in obstetric procedures does not interfere with the progress of labor, as it may with operative procedures in the upper portion of the abdomen, so that the characteristic quiet breathing associated with the administration of the agent does not have the same significance in the former as it does in the latter procedures. On the other hand, relaxation comes in for considerable consideration. In the first part of labor, steady relaxation, except of the cervix, produced by any agent or method, is undesirable. Relaxation of the uterus and of the patient between pains is desirable. However, when the head is being delivered, it may be very desirable to produce muscular relaxation and to inhibit labor for a few minutes to permit control of the presenting part on the perineum. The question of producing immediate or remote untoward results is twice as important as in general surgical practice because there are two types of patients to be considered. Each of them is quite different from the other in many respects as to ability to withstand the respiratory depression caused by anesthetic agents.

The obstetrician has divided labor into three main stages, and the anesthetist can divide the pain of labor into three main phases. However, just as the first stage of labor involves two mechanisms, namely, dilation of the cervix and descent of the head, so is the first phase of pain of two distinct types, one of which is associated with dilation of the cervix and the other with descent of the head. The second stage of labor, consisting of the passage of the head through the perineum, is accompanied by the second phase of pain, and the third stage of labor, consisting of birth of placenta, by the third phase of pain.

ETHER

For practical purposes this paper will be confined to the usefulness of various anesthetic agents and

methods and their application during labor. One of the most universally used agents and methods is ether administered by the open drop or semi-open drop method. No doubt there are many reasons for this wide use of ether. One of the principal reasons is its recognized freedom from immediate and remote untoward results in the average case. Also, ether is as safe as any general anesthetic agent in the average case. It is valuable in a case in which labor is short as well as in one in which it is long, and this flexibility, together with its easy portability, enhances its value. There probably are more trained and untrained persons who can administer, or assist in the administration of ether than is the case with other anesthetic agents.

Pharmacologically ether is capable of producing very little analgesia. It is essentially an anesthetic agent, that is, the dose of ether that will control pain is at the same time sufficient to produce unconsciousness. For the same reason recovery from anesthesia with ether is relatively slow, and labor may be prolonged and delayed, if there is a continuous effect of the ether, regardless of its intermittent administration because labor pains are coming at relatively short intervals. Although this is true of ether when administered by the drop method, its admixture with gas does not result in so long a period of recovery.

OIL-ETHER COLONIC ANESTHESIA

When labor may be prolonged, as with a primipara, the usual way of applying this method is to use a mixture of 60 per cent ether (2.5 ounces or 75 cc.) and 40 per cent oil (1.5 ounces or 45 cc.), the mixture being shaken thoroughly. Quinine often is incorporated in this mixture for stimulating uterine contractions. The rectal method may be used, following administration of morphine and barbiturates. The difficulty of producing an analgesic effect with ether may become apparent in using the rectal method. The patient is as if inebriated but pain is felt; she cries out and moves about and, in order to control these signs of reaction to pain, something further must be given, such as a barbiturate, morphine or even some anesthetic by inhalation. Magnesium sulphate frequently is given intramuscularly, and it acts synergistically with morphine and ether to relieve pain. Administration of the enema may not always be easy, but it usually is. The element of time is always a problem, and more of the enema may be necessary in some cases.

If an overdose of anesthetic is given, the progress of labor may be interfered with. In this con-

nection much more than 2.5 ounces (75 cc.) of ether would be an overdose. The effect may become so profound, if more than 2.5 ounces of ether with more than 1/6 grain (0.01 gm.) of morphine is given, that respiration is interfered with. If such an emergency should arise, the essential point is to secure adequate ventilation, and some means of artificial respiration must be employed. The next act is to withdraw the ether-oil enema or as much of it as possible. The quickest way, in our experience, to speed the patient's recovery from an overdose, is to administer carbon dioxide, 5 to 10 per cent, and oxygen, 95 to 90 per cent. Ether is transported from the rectum by the blood stream to the nervous system and the lungs, as well as to other tissues. If breathing is deep, the rate of elimination is rapid. If respiration is shallow and absorption from the rectum is in progress, then ether will accumulate in the blood stream. Carbon dioxide and oxygen may be given to stimulate respiration, and ether will then be eliminated and recovery will take place. Among the hazards in administration of an oil-ether enema is irritation of an apparently normal colon or exacerbation of the condition of one that previously was diseased. It is important to use a cleansing enema prior to administration of the oil-ether mixture, and it is advisable to inject 1 ounce (30 cc.) of olive oil through the enema tube before the mixture is given.

TRIBROM METHYL ALCOHOL (AVERTIN)

The chemical and pharmacologic properties of this drug have been discussed elsewhere.¹ It was introduced in 1926 as a substitute for Gwathmey's oil-ether colonic preparation which had itself been introduced in 1913. The use of this drug by rectum in obstetrics has not been general for several reasons. One reason is that the solution must be prepared with meticulous care, and estimate of a safe dose is as difficult to make as it is with oil-ether. The probable reason for this is that, since ether is exhaled, it may be much more brief in its effect than avertin which is destroyed in the liver. In almost any condition it has become apparent that the dose of avertin may be sufficient by itself to produce anesthesia. Much smaller doses are used in childbirth than for general surgical conditions. Small doses of this agent frequently result in marked restlessness, which in turn interferes with the conduct of the case. Drapes are disarranged and a sterile technic

cannot be maintained. It is obvious that one occasionally can obtain most satisfactory results with this drug or with some others, but that when such agents become a source of difficulty in the conduct of labor, they cannot redeem themselves by an occasional successful application.

BARBITURATES

Barbiturates,² like avertin, may inadvertently be given in overdoses, regardless of the size of the dose employed, because of variation in the individual resistance or susceptibility of the patient to either one or both of these agents. It has been shown to be unsafe to give doses of barbiturates large enough to produce complete relief of pain. On the other hand, obliteration of the patient's consciousness has been so effective as to cause both patient and obstetrician to favor use of these substances.^{3, 4} The method of administration sometimes has been intravenous and sometimes intramuscular; one finds, however, that after considerable experience with barbiturates the method of administration is not very important in most cases, and that oral or rectal administration in capsules will give more satisfactory results in the average case than other methods of administration. The barbiturates tend to have more a hypnotic than an analgesic effect, and their use for the control of severe pain is less successful than in the control of milder pain. In obstetrics it appears that a certain amount of relief may be obtained from them in the first stage of labor as compared with the period when pain is more severe.⁵ Barbiturates are markedly antispasmodic, and in such conditions as eclampsia, when convulsions may be present, these drugs are almost invaluable. The dose necessary to control convulsions is very much larger than that required for hypnotic or sedative purposes, and in our experience a patient suffering from convulsions will tolerate large doses. The barbiturates do not seem to produce sweating and accordingly they are used satisfactorily in the transportation, by ambulance or otherwise, of individuals who might be difficult to handle, namely, patients with convulsions.

2. Lundy, J. S. and Osterberg, A. E.: Review of Literature on Derivatives of Barbituric Acid; Chemistry; Pharmacology; Clinical Use. Proc. Staff Meet. Mayo Clin., 4:386-416, Dec. 18, 1929.

3. Irving, F. C., Berman, S. and Nelson, H. B.: Barbiturates and other Hypnotics in Labor. Surg., Gynec. & Obst., 58:1-11, Jan., 1934.

4. McNeal, A., Bauer, C. P. and Sanford, H.: Sodium Pentobarbital and Scopolamin Analgesia in Labor, Current Res. Anesth. & Analg., 13:111-115, May-June, 1934.

5. Morehead, D. E. and Mussey, R. D.: Oral Use of Small Doses of Sodium Isoamylethyl Barbiturate for Obstetrical Analgesia: Preliminary Report. Proc. Staff Meet. Mayo Clin., 5:278-280, Oct., 1930.

1. Lundy, J. S.: General Anesthetic Tribromethyl Alcohol (Avertin; E-107): Review of Literature on its Rectal and Intravenous Use. Proc. Staff Meet. Mayo Clin., 4:370-380, Dec. 18, 1929.

It has been shown by Mussey,⁶ Randall⁷ and Moore⁸ that oral administration of sodium amytal or of pentobarbital sodium (nembutal) gives considerable relief to the patient while the cervix is being dilated, and they have observed some shortening of this period of labor in many cases as compared to that anticipated without the use of these preparations. As soon as the stage has been reached when labor pains are more severe, the effect of the barbiturate usually is reinforced by administration of a general anesthetic by inhalation. In hospital practice nitrous oxide is the gas usually employed, although ethylene is just as satisfactory and, because more oxygen may be administered with ethylene than with nitrous oxide and equivalent analgesia obtained, some prefer ethylene; however, nitrous oxide is nonexplosive and has less odor than ethylene and for those reasons it is sometimes preferred. Ether given by the drop method may be used, and in some cases its effect is more analgesic, following use of a barbiturate, than when given alone.

NITROUS OXIDE OR ETHYLENE

From the standpoint of the professional anesthetist nitrous oxide or ethylene offers the most flexible means of relieving pain during childbirth, at least when pain is very severe. When labor pains are severe, nitrous oxide or ethylene usually is administered intermittently. As soon as the patient thinks that pain is about to appear she indicates this to the anesthetist, and the mask is immediately applied to her face; she is instructed to breathe deeply four or five times a mixture of nitrous oxide and oxygen, or of ethylene and oxygen, and then to hold her breath so that she will not further dilute the gas that is already in her lungs. The percentage of gas and oxygen in the bag is varied with the severity of the pain, beginning in the earlier stage of labor with a mixture as low as 50 per cent nitrous oxide and 50 per cent oxygen. As the pains increase in severity, the proportion of gas is increased until, during actual delivery, the percentage of oxygen in the bag frequently is as low as 5 per cent with nitrous oxide, and as low as 10 per cent with ethylene. In the event that a mixture of gas is concentrated, and if, toward the terminal period of labor, the effect of this mixture is not sufficiently analgesic to control pain and movements of the patient, the percentage of oxygen is increased and ether is added.

Because of the urge to bear down and to hold the breath meanwhile, it may be necessary to add carbon dioxide to stimulate respiration and to force the patient to breathe, so that the effect of the anesthetic may be more quickly obtained than when breathing is irregular.

In many cases, if the anesthetist provides too much relief of pain, labor will be prolonged. This calls for less concentrated mixtures when the cervix is becoming dilated. When descent of the head is in progress, and the uterus is beginning to empty itself, it is often noticeable that almost every second contraction will be less painful than the preceding one and, of course, when pain is less severe, fewer inspirations of the gas are necessary for control. It has been found of some help in anesthetizing obstetric patients to assume that these smaller contractions may possibly represent the effort of the uterus to take up its own slack in the process of emptying itself, and in this way to make it possible for the uterine musculature to get better purchase in the next contraction. In any event, when pains are alternately severe and mild, the anesthetic is to be administered accordingly. In the average normal case, and more pronouncedly so among primiparas, it has taken about two hours for labor to terminate after commencement of this alternating type of mild and severe pain. For those patients who can be given ether, nitrous oxide and oxygen serve satisfactorily in conjunction with the ether; for those patients for whom ether is to be avoided, ethylene will give more satisfaction.

CHLOROFORM

Chloroform has been widely used in obstetrics since it came into world-wide attention, when Sir James Y. Simpson administered it to Queen Victoria during labor. The advantages and disadvantages of its use are very clear cut. It is possible to use it in producing analgesia as well as anesthesia, and its successful application depends on its use as an analgesic rather than as an anesthetic agent.⁹ Those who have used it in this way claim to have avoided its disadvantages which, of course, are the immediate untoward effects of an overdose; in such instances the condition which arises resembles cardiac failure and the patient dies quickly. More often, however, cases occur wherein life is terminated by central necrosis of the hepatic lobules about a week or ten days after delivery.

It is interesting to note that death from delayed chloroform poisoning occurs in the case of the

6. Mussey, R. D.: Editorial. *Obstetrical Analgesia and Anesthesia*. Surg., Gynec. & Obst., 59:112-115, July, 1934.

7. Randall, L. M.: *Obstetrical Analgesia*. Proc. Staff Meet. Mayo Clin., 8:166-169, March 15, 1933.

8. Moore, J. H.: *Alleviation of Pain in Obstetrics*. Am. J. Obst. & Gynec., 26:729-733, Nov., 1933.

9. Lundy, J. S.: *Useful Anesthetic Agents and Methods*. J. A. M. A., 97:25-31, July 4, 1931.

mother and not the child. Possible explanation for this can be made from the interesting research of Anderson¹⁰ on the destructive effect of chloroform on hepatic tissue. He has demonstrated that in the rat part of the liver may be excised and yet regeneration will take place; thus, in a single rat one may have both old and newly-formed hepatic tissue. Poisoning of such a rat with chloroform will cause destructive lesions to appear in the older part of the liver rather than in the newly-formed part. The older part of the liver in the rat might represent the mother's liver, and the newly-formed part the liver of the child.

LOCAL AND REGIONAL ANESTHESIA

It is possible to anesthetize the cervix by infiltration of solution of procaine at either side of it. The perineum may be anesthetized by infiltration into the fourchet and by blocking the perineal nerves at a point 1 cm. medial and 1 cm. caudal to the tuberosities of the ischia. The success with which solution of procaine is used will depend on the temperament of the patient, the success with which preliminary medication has been given, and on an estimate of the time before termination of labor. Supplementary anesthesia by inhalation frequently is necessary. This method is advised by some.¹¹

Block anesthesia with procaine and without epinephrine does not last long, and the procedure must be repeated when the effect wears off, if it has not lasted long enough. Sacral block which includes caudal block seldom is used, although it is a very useful method when it can be applied. The use of sacral block is more useful in operative obstetrics than in normal labor, but it may be used in normal labor in selected cases.

To cite an example: A woman, thirty-two years of age, with almost complete aortic regurgitation, had progressed in labor to a point at which she was becoming very tired. Blood pressure in millimeters of mercury was 185 systolic; the diastolic pressure could not be ascertained. The obstetrician had decided to perform manual dilation of the cervix, to deliver the child with forceps after episiotomy, and to repair the cut in the perineum. Sacral block was effected by injecting 30 cc. of 1 per cent solution of procaine into the caudal canal and 15 cc. of the

same solution into the second sacral foramen on each side. Five minutes after the solution had been injected into the caudal canal the patient ceased to complain of pain. Contractions of the uterus were inhibited for about fifteen or twenty minutes and then returned. The operative procedures were carried out and the patient was unaware that the baby had been born until it was shown to her.

The technic of blocking the sacral nerves, which has been discussed elsewhere,¹² is not particularly difficult, although usually it has been considered so. At present physicians are available in only a few localities who can induce sacral block anesthesia, and they carry on an institutional practice. Yet it is to those physicians whose practice is not institutional that sacral and other forms of block anesthesia are of the greatest value, for they can be applied at any place and at any time by the physician in charge of the case. We are sure that the future will see a more general utilization of block methods of anesthesia and that these methods will be carried out by physicians in general practice to a greater extent than they are today.

SPINAL ANESTHESIA

Spinal anesthesia can be used in operative obstetrics; it has been used, for example, with success for cesarean section. Since one of the usual contraindications to the use of spinal anesthesia, however, is the possibility of severe hemorrhage, its application in obstetrics is limited, as hemorrhage may occur at any time. On the other hand, when spinal anesthesia is indicated, it may be very useful, even though, because of the element of time, the effects from its use occasionally may not last long enough.

ABDOMINAL BLOCK

For cesarean section it is easy to infiltrate the line of incision in the abdominal wall and to perform the operation without a general anesthetic, although it is well to give sedatives before operation. This is an especially useful procedure when it is combined with general anesthesia, and under such circumstances a form of balanced anesthesia is obtained, wherein relief of pain is accomplished by using more than one agent, each one doing its part in the relief of pain. In general, anesthesia for cesarean section is much the same as for any other operation on the uterus, in which the abdomen is entered.

10. Anderson, R. M.: Effect of Chloroform and A. C. E. Mixture on Liver of White Rat. *Current Res. Anesth. & Analg.*, 11:276-283, Nov.-Dec., 1932.

11. O'Connor, C. T.: Local Anesthesia in Obstetrics. *New England J. Med.*, 210:788-792, April 12, 1934.

12. Lundy, J. S.: Method for Producing Block Anesthesia of Sacral Nerves. *Am. J. Surg.*, 4:262-270, March, 1928.

BRAIN COMPLICATIONS FOLLOWING MASTOIDITIS

WITH SPECIAL REFERENCE TO THE PETROUS APEX
REPORT OF FOUR CASES

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For a number of years the literature has kept us well posted on brain complications associated with otology and rhinology, but particularly has this been true since 1929. From that time until the present many monographs, original articles and scientific investigations have appeared in the journals both here and abroad relative to infections in the apex of the petrous tip. Recent work has been done by Eagleton,¹ Kopetzky,² Almour,³ Lillie,⁴ Freisner,⁵ Roberts,⁶ Druss,⁷ Johnston,⁸ Meltzer,⁹ Seydell,¹⁰ Profant,¹¹ Glick,¹² Greenfield¹³ and many others.

Three of the four cases that I shall report are given in retrospect because I did not suspect petrositis at that time, and one of them was a recent case. Case 4, I am sure, had infection in the petrous tip. Case 2 I am as positive as one can be on clinical evidence and results. Cases 1 and 3 I strongly suspect had infection in the apex of the petrous bone.

None of these patients had Gradenigo's syndrome. All of them had severe pain on the corresponding side of the head, and two of them definitely had pain behind the eyes and through the temples. One had a transient facial paralysis, and another had definite aphasia. This latter symptom I am unable to explain unless it was due to general intracranial pressure. I shall say more of this in detail in the case report.

Roberts, in 1927, reported a case of tempo-

sphenoidal lobe abscess, following mastoidectomy, and a decompression without results. In his case Gradenigo's sign was present for twenty-two days following the mastoid operation. The patient had aphasia for weeks, then death, and postmortem that showed a temporosphenoidal lobe abscess with a stalk and cap from the tip of the petrous apex.

Case 1 had facial paralysis that came on two days after operation and began to improve at the end of one week. The patient had a highly pneumatized mastoid and there is a possibility that some inflammatory irritation took place about the geniculate ganglion of the facial nerve, causing a temporary paralysis, or it could have been injured in the mastoidectomy. However, it is unusual for a facial paralysis to develop after a two day interval following mastoidectomy, if due to injury.

All of these patients but one showed extensive pneumatization of the mastoid. Case 4 did not, but in this case an otorrhea had been present since early youth. Wittmaack has shown that pneumatization is arrested in youth by an infective process, yet it had evidently taken place in the tip of the pyramid early enough to have produced cells in which a definite abscess was found at autopsy. Kopetzky says that all his patients with petrous tip involvements were highly pneumatized and that this must be true before an infection can take place.

In Case 2 there was a definite period of quiescence. The patient was free from deep seated pain for five days, to be followed quickly by a fulminating septic meningitis. Kopetzky and Almour¹¹ say that in their series of cases an interval of freedom from all pain of diagnostic import lasted from five to nineteen days. They are of the opinion that this period coincides with the invasion of the endocranium. This was true in Case 2 of this report. They say that in only one instance did it signify spontaneous evacuation of the tip through the middle ear.

REPORT OF CASES

Case 1. Acute bilateral mastoiditis, severe postoperative pain and profuse suppuration, temporary facial paralysis, recovery.

R. E. W., age 34, female, was first seen August 2, 1929. She gave a history of having been ill with a severe cold. This had lasted for ten days, and on the eleventh she developed pain in the right ear, followed in twenty-four hours by pain in the left ear. An examination showed both drums red and bulging.

She was admitted to the hospital on the fourteenth day of her illness. A general anesthetic was administered, and a bilateral myringotomy was done. Pus and blood under

1. Eagleton, W. P.: Unlocking of Petrous Pyramid for Localized Bulbar (Pontile) Meningitis Secondary to Suppuration of Petrous Apex; Report of 4 Cases with Recovery in 3. *Arch. Otolaryng.*, 13:386-422, March, 1931.

2. Kopetzky, S. J.: Problems Concerned with Empyema of Petrous Apex. *Arch. Otolaryng.*, 18:47-61, July, 1933.

3. Almour, R.: Surgical Therapy for Relief of Suppuration of Petrous Pyramid. *Laryngoscope*, 41:405-406, June, 1931.

4. Lillie, H. I. and Williams, H. L.: Suppuration of Petrous Pyramid; Report of Two Cases. *Arch. Otolaryng.*, 15:692-696, May, 1932.

5. Friesner, I. and Druss, J. G.: Osteitis of Petrous Pyramid of Temporal Bone, Associated with Paralysis of External Rectus. *Arch. Otolaryng.*, 12:342-365, Sept., 1930.

6. Roberts, E. R.: Acute Otitic Temporosphenoidal Abscess. *Arch. Otolaryng.*, 6:420-425, Nov., 1927.

7. Druss, J. G.: Anatomy and Pathology of Petrositis. *Laryngoscope*, 41:394-397, June, 1931.

8. Johnston, W. H.: Abducens Paralysis Complicating Otitis Media and Mastoiditis. *Ann. Otol., Rhin. & Laryng.*, 43:94-113, March, 1934.

9. Meltzer, P. E.: Gradenigo's Syndrome; Anatomic Aspects. *Arch. Otolaryng.*, 13:87-93, Jan., 1931.

10. Seydell, E. M.: Surgical Treatment of Suppuration of Petrosal Pyramid. *Ann. Otol., Rhin. & Laryng.*, 42:455-462, June, 1933.

11. Profant, H. J.: Gradenigo's Syndrome, with Consideration of "Petrositis." *Arch. Otolaryng.*, 13:347-378, March, 1931.

12. Glick, H. N.: Microscopic Observations of Petrous Apex. *Ann. Otol., Rhin. & Laryng.*, 42:175-191, March, 1933.

13. Greenfield, S. D.: Gradenigo's Syndrome. *Arch. Otolaryng.*, 9:171-174, Feb., 1929.

14. Kopetzky, S. J. and Almour, R.: Suppuration of Petrous Pyramid; Pathology, Symptomatology and Surgical Treatment. *Ann. Otol., Rhin. & Laryng.*, 39:996, Dec., 1930; 40:157, March, 1931.

pressure escaped. She remained in the hospital from August 9 to August 11. The ears were still discharging but there were no definite signs of mastoiditis. Her temperature had receded from 102° on admittance to normal on the day she left the hospital. The white cells had dropped from 13,000 to 9,000. The pain and discharge from the ears was more marked on the right than on the left.

She was readmitted to the hospital on August 25. During her stay at home the aural discharge had increased. She had felt ill in general but particularly had she suffered with pain in the left ear and the left side of her face and temple. A roentgenogram showed thickening of the cell partitions, and an extensive pneumatization extending well up on the squama and the root of the zygoma.

On the following day a bilateral mastoidectomy was done. The cells were filled with pus and granulations but they were not broken down. On the tenth day after the operation the right canal was dry and the mastoid wound healed. On the second postoperative day she had a partial facial paralysis on the left side, and complained bitterly of pain in the left temple and deep in the ear. On the seventh postoperative day the facial paralysis began to clear up, and on the twenty-fourth postoperative day when she left the hospital it was scarcely noticeable.

During the entire stay in the hospital pus was copious from the mastoid wound, and the external auditory canal on the left side, until the twentieth day, when both canal and wound suddenly stopped discharging. During the first ten days, postoperative, she had periodic attacks of severe pain in the ear and the temple, which radiated toward the maxilla and required an opiate to control. From that time until she left for home she continued to have this same kind of pain, the attacks of which grew further apart and milder in intensity. I saw her again on October 15. At that time the ear was well and the facial paralysis cleared up.

COMMENT

There are several reasons why I report this case.

(1) Because of the extensive pneumatization. Nearly all writers mention this in connection with brain complications from the petrous apex. (2) Because of the copious prolonged discharge. This is another symptom of deep seated lesion in the petrous bone. If, in doing the mastoidectomy, a thorough extirpation of the cells is done there is something beyond from which suppuration is coming. (3) The character of the pain. This was severe, intermittent, always deep in the ear and through the temple. Occasionally there was some pain in the maxillary region. At no time was there pain behind the eye. The pain of which the patient complained could have originated in the great superficial petrosal nerve. It, more nearly than any other nerve (Vail¹⁵), lies directly on the petrous tip and is not imbedded in the dura. It originates in the geniculate ganglion (the sensory portion of the seventh nerve), and ends in the sphenopalatine after having formed the Vidian by uniting with the great deep petrosal. From the sphenopalatine ganglion branches are given to the second division of the fifth nerve. It

is my opinion that the pain in this case was caused by an irritation of the great superficial petrosal, the geniculate, and the sphenopalatine ganglions. (4) One could conceive of enough irritation about the motor fibers of the facial to cause the temporary paralysis of the muscles of expression. The pain in the face that was occasionally complained of could have been due to an irritation of the second branch of the fifth at the sphenopalatine ganglion.

Case 2. Pneumatic mastoid, perisinus abscess, general meningitis, death.

P. A., age 10, female, was ill for three days with German measles, followed by pain in the left ear that was severe and continuous for twelve hours when the drum ruptured spontaneously, followed by a profuse purulent, bloody discharge. The pain in the ear over the mastoid and through the temple persisted after the rupture of the tympanum.

I saw her first on December 28, 1934, twelve hours after the aural discharge began. At that time she had a temperature of 103°, severe pain in the ear and left side of the head. Palliative measures were prescribed, the child was kept in bed, an ice bag applied, etc. I saw her again on December 31. At this time the opposite ear had been aching. A myringotomy was done; immediately pus and bloody discharge filled the canal. Her temperature dropped from 103° to 100.6° and in about six days the right canal was dry.

On the evening of December 31 she had some severe pain behind the right eye, and on the following day it was more pronounced. There was slight edema and tenderness over the mastoid process. I again advised mastoidectomy. Her parents objected. The pain, temperature, and the profuse discharge persisted, and on January 3, 1935, she was admitted to the hospital.

A radiogram showed the left mastoid decidedly cloudy. The right was normal. Pneumatization was extensive, going well into the root of the zygoma, the squama and back of the mastoid process. The pain behind the eye persisted during the next twenty-four hours and then stopped. She felt perfectly comfortable; her temperature dropped to 99°, and until January 7 it remained between normal and 100.8°.

Against my advice she was taken home in midafternoon of January 7. At 9:00 p. m. she had some pain in the left eye and temple. She rested poorly until early next morning when she began to have severe general headache, exaggerated in the left temple and behind the left eye. She was readmitted to the hospital on January 8, less than twenty-four hours after leaving. She vomited on the way and again shortly after she was admitted. She was beginning to have some rigidity of the neck, a positive Kernig and dilation and contraction of the pupils.

The cerebrospinal fluid contained 5,000 cells, white blood count 9,000, and a bilateral papilledema of about 2 D, both sides. In other words, she was beginning to have all the signs of a diffuse leptomeningitis. The headache grew more intense; the temperature arose to 107°, and at 6:00 a. m., January 9, she died of respiratory paralysis. Unfortunately no autopsy was permitted.

COMMENT

I have cited this case as petrous tip involvement because of two outstanding symptoms. (1) The definite pain behind the eye. This symptom came on a few days after the involvement of the mastoid and persisted until (2) a period of quiescence made itself definitely manifest. During her first stay in

15. Vail, H. H.: Vidian Neuralgia with Special Reference to Eye and Orbital Pain in Suppuration of Petrous Apex. *Arch. Otolaryng.*, 17:212-221, Feb., 1933.

the hospital she was entirely free from pain, and yet one could plainly see from an examination of the ear and her hospital chart that the process was still going on. Her pulse was a little above normal. She was a little more irritable than usual; her white cells were 9,000. In other words, there was a low grade septic condition still present. I believe this quiet period was ushered in by a rupture through the petrous apex, and during this time a subdural abscess was forming. The tension was relieved; therefore, there was no pain. On her second admittance to the hospital the abscess had ruptured into the arachnoid meshes and a general septic leptomeningitis followed.

Case 3. Chronic otitis media, aphasia, large abscess drained through temporal bone, recovery.

G. P., age 20, female, consulted me first in June, 1928, complaining of a chronic foul smelling discharge from the left ear. The hearing was fair and the labyrinth reacted normally; otherwise, she was in perfect health. I treated the ear over a long period of time without any appreciable result.

Four years before she had a left mastoid operation done at home by a general surgeon. Following the operation she continued to have the same symptoms as before, i. e., general sepsis, severe headache, high fever and profuse discharge. She was taken back to the operating table on the fifth day and the mastoid was again opened. Following this she had a complete facial paralysis and a left hemiplegia. There was no relief of the general condition and she was then taken to a clinic where the wound was merely opened and drained. In one month she had returned home with all symptoms cleared up other than the discharge from the left ear which had persisted.

She was now married and six months pregnant. Following a rather hearty supper she was suddenly overtaken with a very severe pain in the left ear, followed immediately by unconsciousness. I saw her about five hours later, when she was admitted to the hospital. She lay in a sort of stupor, breathing heavily with the head drawn back, the pupils contracted and the muscles of the back rigid. She appeared semiconscious but was unable to talk, to write or in any way to make her wants known.

On October 29, the evening of her admittance, 30 cc. of cloudy spinal fluid under pressure was withdrawn. The cell count was 3,200. No organisms could be found either on a highly centrifuged specimen or on culture. The white blood count was 14,000, temperature 100°, pulse 128. The following morning the temperature reached 103° and remained between 101° and 103°, with a pulse of 122 to 156, until November 3, when it went to 105°. On October 31 another spinal fluid examination showed less pressure, and the cell count was 350. The general condition stayed about the same, viz., complete aphasia, stupor, rigidity, restlessness, unequal irregular pupils but no papilledema.

Fearing there was a block in the cerebrospinal circulation a cisternal puncture was done. Ten cc. of cloudy fluid was taken under moderate pressure. The cell count was 250; all cultures were sterile. Pus was now profuse from the auditory canal. On November 4 I did a radical mastoidectomy. As I approached the tubotympanic space a gush of pus welled out of the base of the skull. There was not less than two ounces. I then inserted a probe and it seemed to go well into space; measurement showed 5 cm. from the tympanum toward the center of the floor of the skull.

The patient's condition was good. The wound was

drained. In twenty-four hours the aphasia began to clear up and she made an uneventful recovery. She left the hospital on November 20. The mastoid wound and the canal were dry. In three months she gave birth to a normal child and has been in perfect health since.

COMMENT

On the evening of October 29, when she had sudden, severe pain in the ear followed immediately by an unconscious state and complete aphasia, what happened? She had had a chronic running ear for four years, following a series of mastoid operations. She had run a stormy course. Facial paralysis, hemiplegia, severe headache on the same side and sepsis. The petrous apex could have been invaded at that time, then drained quietly for years.

Suddenly the petrous ruptured, extradurally, hence the severe pain. (a) A spreading subdural abscess caused cerebral pressure on the left side well toward the cortex involving the speech centers; then followed aphasia, or (b) more probably pressure on the middle cerebral artery which branches from the carotid in the region of the petrous apex. The motor cortex subserving speech is all within the domain of this artery and aphasia is most frequently due to diseases of the branches of the trunk of this vessel. Trauma, meningitic diseases and new growth may also cause it, and a partial ischemia could have resulted in the speech centers. Such a condition could account for the high cell count in the spinal fluid as well as the fact that the fluid was sterile. This patient was cared for before the work of Kopetzky, Almour, Eagleton and others was completed on the petrous tip and it did not occur to me at that time, but there was certainly an enormous cavity in this region when the probe was inserted. (c) Probably a temporosphenoidal lobe abscess could have ruptured through the ear, but one can scarcely conceive of it causing a sterile meningitis, an aphasia and a final escape through the temporal bone. You will recall that from the time she entered the hospital until the pus was evacuated the pulse ranged from 122 to 156. This is certainly not a sign of cerebral abscess but rather that of an irritative lesion, extradural.

Roberts⁶ reports a case of temporosphenoidal lobe abscess following mastoidectomy, lateral sinus operation, decompression, and searching for the abscess but with no results. In his case Gradenigo's sign was present for twenty-two days after the mastoid operation. The patient had aphasia for weeks, then death, and autopsy which showed a temporosphenoidal lobe abscess with a stalk and cap from the tip of the petrous apex. He states that the

superior border of the petrous bone near the apex had produced a concavity of one inch in diameter. What caused the aphasia here he makes no attempt to explain, but I wonder if the speech centers were pressed up by the abscess, or if a compression of the middle cerebral artery could have caused it.

Case 4. Chronic otitis media, petrous rupture, temporo-sphenoidal lobe abscess, meningitis, death.

A. M. B., male, age 24, entered the hospital October 7, 1932. He had a chronic suppurative otitis media since the age of 8 following scarlet fever. Other than occasional colds, followed by earache, profuse purulent discharge and deafness, he had grown to manhood in good health. On October 6 he complained of severe pain in the left ear, the left temple and behind the left eye. Accompanying this was marked hyperesthesia over the left side of the scalp.

On the early morning of October 7 he had what his family called a convulsion, and shortly after was admitted to the hospital. His temperature was 99°; his pulse was 92; the white blood cells were 15,000. Radical mastoidectomy was advised but refused. The following day the pain subsided. His temperature was normal and his pulse 80. The next morning he had a distinct chill. The temperature went to 104°, the pulse to 72. This was preceded by a severe pain in the left side of the head and in the left ear.

On October 10, four days after the initial pain, I did a radical mastoidectomy. The cells were sclerotic. The attic and antrum were filled with pus and debris. The sinus was uncovered but pulsed and seemed to be normal. The dura was then exposed over an area of about 2 cm. in diameter. No pus was discovered; the brain was not searched. The wound was drained and he was returned to the ward in good condition. The same afternoon his temperature went to 105°. He had intense general headache, delirium, a rigid neck, irregular pupils, deep stupor and died on the third day postoperative, of respiratory paralysis.

Pathology: The right mastoid bone was sclerotic. The right middle ear cavity was filled with the customary debris of chronic purulent otitis media. The right petrous tip cells seemed uninvolved. There was a typical basilar meningitis. There was a dark broken down area covered with some granulations and pus, causing adhesions between the dura and the superior surface of the petrous bone on the left side. The rupture had taken place at the tip near the carotid artery. Leading from this area through a well developed stalk to the temporo-sphenoidal lobe was a large encapsulated abscess containing about two ounces of pus. The tubotympanic cells were necrotic and broken down.

COMMENT

The patient had been under my care for years, and when I had failed to get any results from ordinary office treatment I had advised a radical mastoidectomy but he had good health and did not heed my warning. My records show that in ten years I had treated him through many attacks of earache, deafness and profuse aural discharge. The pain at these times was that of deep earache and did not radiate to the eye, the temple or the maxilla until his final illness. The rupture through the petrous tip, the dural penetration in forming the stalk of the abscess, and the abscess itself did not cause pain until the final rupture which resulted in a general leptomeningitis. At this

time it seemed that the first and second branches of the fifth cranial nerve, with probably the great superficial petrosal, were definitely irritated. This was pronounced for three days before the initial chill, fever and signs of general meningitis appeared. A correct diagnosis seemed most impossible in this case, since there were no localizing signs to be found. The abscess was concealed in a silent area of the brain and the patient went about his work while this pathology was in the making.

RESUME

It is difficult to evaluate all the important symptoms of these cases in their proper light and connect them to the petrous apex. There are other intracranial conditions that confuse the picture, so that we can only say this or that is the most probable conclusion we can come to. Of the four cases reported two are dead and two are living and well.

Case 1 fortunately recovered after a simple mastoidectomy. I have attempted to explain her symptoms relative to both sensory and motor nerve connections. She had two extensively pneumatized mastoids. They were involved in an infective process at the same time, but pain was severe in the regions of the first and second divisions of the fifth nerve in the left ear three days before mastoidectomy was done.

Eagleton says that "facial pain in suppurative disease is diagnostic of middle fossa involvement. All cases with facial pain that disappears after simple mastoidectomy are probably due to irritation of one of the sensory communications of the fifth and not the fifth nerve itself." The technic was the same on both sides. I have concluded that infection passed to the tip on the left, and definitely irritated the nerves in direct anatomic contiguity; while on the right, the pathologic process was limited to the mastoid cells only.

Case 2 in all probability could have been saved, if operation had been permitted early. The pain in the ophthalmic division of the fifth, followed by a period of quiescence, then general headache and fulminating meningitis all taking place in an extensively pneumatized mastoid, is evidence enough to attack the petrous tip.

In Case 3 the diagnosis lay between a petrositis and extradural abscess with compression and temporo-sphenoidal lobe abscess that drained through the petrous bone.

Case 4 had a petrositis that connected with a temporo-sphenoidal lobe abscess as proven by autopsy.

ATTRACTIONS OF CLATSOP COUNTY AND GEARHART

Clatsop County, in the northwestern corner of the State of Oregon, bordered by the Pacific Ocean and the Columbia River, forms an ideal convention meeting place. The summer and early fall weather conditions are a treat for visitors from other sections of the state and the interior, as evidenced by the increasing number of people coming each year to enjoy a vacation on or near the ocean shore. Housing accommodations are ample to care for a large number of visitors. Modern hotels are located at Astoria and the principal beach resorts at Gearhart, Seaside and Cannon Beach; in addition, cottage and auto camp facilities for thousands are available at the beach resorts.

INTERESTING HISTORICAL BACKGROUND

Clatsop county has probably the most interesting historical background of any section of Oregon. The Columbia River was discovered by Captain Robert Gray in 1792 and named for his ship, the "Columbia." Lewis and Clark explored the lower river and spent the winter of 1805-1806 at Fort Clatsop, just west of Astoria, on the river later named for the two explorers. Astoria was founded in 1811 by the Pacific Fur Company, this being the first permanent American settlement west of the Rocky Mountains. Clatsop Plains, just north of Gearhart, was the scene of some of the earliest missionary activities in the Pacific Northwest. These early historical events had important and far-reach-

ing effects, eventually resulting in Oregon and much of the Pacific Northwest becoming a part of the United States. In the early part of the nineteenth century this area near the mouth of the mighty Columbia was the goal of the trader, explorer and pioneer settler and on its banks are the last resting places of many intrepid adventurers.

INDUSTRIAL AND AGRICULTURAL ACTIVITIES

Clatsop county ranks well up in the list of Oregon counties in industrial and agricultural activities. It is the headquarters of the famous Columbia River fishing industry. Fish are brought from the river and the ocean to the numerous packing plants on the lower river, where they are canned, cured or frozen, then shipped to the markets of the world. The manufacture of high grade medicinal salmon oil has developed into an important item in the fishing industry's production in the past few years. The reduction of ocean-caught pilchards into fish oil and fish meal was started this year under regulations approved at the last session of the state legislature, these products going into livestock and poultry feed.

Extensive logging and sawmill operations are carried on in several areas of the county. The logs are hauled by rail or truck from the timber to the rivers and towed to the sawmills located along the Columbia River. The many fertile valleys of Lower Columbia River have developed a large dairy industry, favored by a long period of green pasturage,



Hotel Gearhart, Headquarters for 61st Annual Meeting of Oregon State Medical Society, Sept. 19-21, 1935.



On the Gearhart Golf Course.

equable climate, mild winters and cool summers. Other important agricultural products are poultry, vegetables, bent grass seed, bulbs, cranberries.

UNEXCELLED RECREATIONAL ADVANTAGES

It is in the realm of recreation, however, that Clatsop county is best known to the average citizen of the Northwest. Few spots in the world can match the varied scenery, the cool, comfortable climate or the recreational advantages of the Clatsop beaches. There are thirty miles of white, hard sand, where the motorist may drive at the very edge of the ocean surf. There are rocky promontories to vary the scenery and provide vantage points for ocean fishing. It is but a short distance from the blue of the ocean to the green of sylvan forests on rugged hills of the Coast range. Improved roads, trails and paths lead the traveler to spots of interest and beauty. Sparkling mountain streams provide sport for the angler.

Three sporty golf courses, saddle horses, swimming pools, skating rinks, dance halls and many other similar attractions furnish a variety of entertainments and healthy exercise. It is the Pacific Ocean, however, that furnishes the magnet for most of the vacation visitors with its ever changing moods, the invigorating tang of its salty breezes and its melody of pounding surf to bring deep and restful sleep. Here is a country where a life of outdoor pleasure may be enjoyed any month of the year. Here is the ideal setting for a "convention in vacation land."

HOTEL GEARHART, CONVENTION HEADQUARTERS

Hotel Gearhart, headquarters for the Oregon meeting, is located seventeen miles south of Astoria, and three miles north of Seaside, on the Oregon Coast Highway, 122 miles from Portland. There are scores of interesting places to visit near by, the Columbia River South Jetty and old Fort Stevens, for example. This part of Oregon's coast is famed

for excellent surf fishing, crabbing and clamming.

Here's a delightful place near the sea, yet secluded, that offers every vacation thrill "in the book." Seventeen miles of interesting beach, a wonderful golf course, Oregon's most popular coast town nearby, trout fishing in the mountains to the East, all this in constant sight of Oregon's kaleidoscopic coast line.

Hotel Gearhart has one hundred spacious guest rooms with every convenience to be found in the finest metropolitan hotels. Reservations for the Oregon Session should be made by writing Hotel Gearhart, Gearhart, Ore., attention of Mrs. John Degges, manager. Inquiries will receive immediate attention.



Sunset at Gearhart.

NORTHWEST MEDICINE

The Journal of the State Medical Associations of
Oregon, Washington and Idaho

Devoted to the Interests of the Medical Profession
of the Pacific Northwest

Editorial Office, 543 Stimson Building, Seattle, Wash.

SEPTEMBER, 1935

EDITORIAL

SOME FEATURES OF THE WASHINGTON MEETING

One of the chief purposes of the state medical association is to supervise and promote the welfare of the profession of the state, including economic considerations and enactment of wise legislative procedures which will be beneficial to the general public. At the Everett meeting of Washington State Medical Association it was noticeable that emphasis was largely concentrated on these features. At the meetings of the House of Delegates, at special luncheons and in some papers of the scientific program attention was directed to these problems. This is a natural situation at this time, when the fate of the future practice of medicine in a certain sense hangs in the balance. The sentiment was frequently expressed that the ultimate determination of the character of medical practice will rest with the profession itself, depending upon the manner of solution of many matters under consideration. The message presented by Olin West, secretary of the American Medical Association, was a plea for maintaining the integrity and independence of medical practice and its preservation under the control of the medical profession without supervision of lay organizations. He emphasized that accomplishing of such results rests in the hands of the medical practitioners and the manner in which they conduct the many features of practice during the present trying period of uncertainty.

Various measures were considered by the House of Delegates relating to the conduct of the state organization as represented in its constitution and bylaws. The published official report of transactions will present these various measures. There was an unfortunate conflict of the second session of the House with the scientific session which functioned at the same period. Since important matters under discussion attracted the full membership of the House, together with an interested gallery of other members, a small audience remained for the reading of papers. This conflict might be avoided, if the Oregon plan were adopted of scheduling the meetings of the House of Delegates at the breakfast

hour. At the Oregon meeting this is commonly attended by a full House and a large group of interested members. The meeting is called to order early in the breakfast hour, thus permitting between two and three hours for full discussions of all matters presented before ten o'clock adjournment for the scientific meeting. Such sessions of the House provide abundant time during three days for its proceedings without inflicting the injustice of encroaching on the time of the scientific session.

The two luncheons were largely attended, the first being devoted to the State Medical Service Bureau, whose purpose was described as coordinating the different county bureaus which are functioning in all parts of the state. The chairman of the committee illustrated the usefulness of the state organization by reference to two national organizations with employees in most cities which are contemplating establishing panels of physicians to care for their employees. Negotiations were described which it was hoped would result in an arrangement with the state bureau to take over this practice, which in turn would be distributed locally to the different county bureaus. Other successful functions of the bureau system were described which would indicate that this plan of caring for the low wage earners is being established on a permanent footing.

The second luncheon hour was devoted to the Public Health League. Both its officers and Dr. Bice of Yakima, a member of the recent legislature, described the important part displayed by this organization in helping the defeat of vicious health measures introduced by special interests at the recent legislative session, intended chiefly for the benefit of medical cults. The necessity of maintaining this legislative branch of the State Association was clearly outlined. The importance was emphasized of concentrating activities on election of safe and suitable candidates for the next legislative session. Under the proven leadership of the League, continued for future activities, it is believed further satisfactory results may be attained. The House of Delegates voted that the sum of \$25,000, in addition to regular dues, shall be raised during the coming year by subscription to defray the cost of promoting the activities of the State Association. Financing the Public Health League will be included under this expenditure.

While the scientific program was not as extensive as is ordinarily presented, it featured practical subjects which were listened to by attentive, good sized

audiences. Alfred H. Rowe of Oakland, a national authority on allergy, presented various features of this subject, showing the practical results of its judicious administration, convincing his hearers of the importance of this form of therapy. C. Ulysses Moore of Portland is well known to the Washington profession, particularly for the work which he has accomplished in demonstrating the effectiveness of vitamin D. Beginning with the pioneer days of investigation on the subject of vitamins, he has accumulated a mass of data concerning the role of this agency in maintaining health. The importance of early detection of poliomyelitis was clearly demonstrated by Edward B. Shaw of San Francisco who made an appeal for recognition of the disease previous to the onset of paralysis. He showed that its prognosis has a more hopeful outlook than is held by many practitioners. Papers read at the meeting will appear in subsequent issues of this journal.

Special commendation is due the members of the Association who prepared scientific exhibitions covering many phases of professional activities and research work. These were unusual in number, probably greater than presented at any previous meeting. Being set up in the hallways or on the walls, they attracted the attention of nearly all visitors who were outspoken in their approval and commendation. This is a form of professional effort that is well worthy of further future development.

The Woman's Auxiliary to the State Medical Association was well attended not only by the wives of Everett doctors, but also visitors from many cities. They had an interesting program which provided a pleasing entertainment. The profession of Everett won the gratitude of all visitors by their cordiality and many provisions for the comfort of the visitors. A noticeable feature of the meeting was the harmony and friendliness among the members from all parts of the state.

The official report of the transactions of this meeting will be published in the October issue of this journal. The election of Delmar F. Bice of Yakima as president for the ensuing year and selection of that city for the next meeting was unanimously approved.

PROGRESSIVE ATLANTO-AXIAL DISLOCATION. Edgar A. Kahn and Luis Yglesias, Ann Arbor, Mich. (*Journal A. M. A.*, Aug. 3, 1935), regard forward displacement of the atlas on the axis with fracture of the odontoid process as a progressive lesion. They believe that one should not be lulled into a false sense of security following a symptom-free interval on conservative treatment. During the course of conservative treatment, should evidence of progression be found, occipitocervical fusion is indicated before pressure myelitis develops.

OREGON ANNUAL MEETING

The annual meeting of Oregon State Medical Society at Gearhart, September 19-21, will attract a large attendance of the members and visitors both on account of the high quality of program prepared as well as the natural attraction of the ocean and surrounding country. On another page of this issue will be found information regarding Clatsop county and interesting features of its environment. The attached program presents a list of interesting papers prepared by well known men of the state as well as by visiting physicians, Drs. Hans Lisser of San Francisco and Hubbard T. Buckner of Seattle. Other interesting and important features will be found outlined in the program. The golf tournament which has become a necessary feature of all state association meetings is scheduled for the afternoon of the last day of the session. A medical meeting on the ocean is unusual and will doubtless prove an attractive inducement to a large number.

PROGRAM

THURSDAY, SEPTEMBER 19

- 7:30 a.m. Breakfast Meeting of House of Delegates.
- * 9:00 a.m. Registration.
- 10:00 a.m. The Causes and Treatment of Urinary Retention. Paul H. Nitschke, Portland.
- 10:45 a.m. An Analysis of Fatal Thrombotic Pulmonary Embolism. Thomas D. Robertson, Portland.
- 11:30 a.m. Eradication of Hernia by Injection. Roy C. McDaniel, Portland.
- 12:15 p.m. Adjournment for Luncheon.
- 2:00 p.m. Treatment of Supracondyloid Fractures of the Elbow. Hubbard T. Buckner, Seattle.
- 3:00 p.m. Significance of Gastrointestinal Hemorrhage. G. W. Millett, Portland.
- 3:45 p.m. Etiological Factors in So-called Ideopathic Epilepsy. L. D. Inskeep, Medford.
- 4:30 p.m. Goiter. Interesting Practical Points. Millard S. Rosenblatt, Portland.
- 5:15 p.m. Adjournment.
- 7:30 p.m. Symposium: Common Errors Responsible for Maternal Mortality.
 - 1. Introduction. Raymond E. Watkins, Portland.
 - 2. The Relation of the Toxemias of Pregnancy to Maternal Mortality. V. E. Dudman, Portland.
 - 3. The Relation of Hemorrhage to Maternal Mortality. Goodrich C. Schauffler, Portland.
 - 4. Other Accidents of Labor. Theodore W. Adams, Portland.
 - 5. Summary and Conclusions.
- Discussion: Albert Mathieu, Eugene P. Steinmetz, Howard C. Stearns, William M. Wilson and Albert W. Holman, Portland; Grant S. Beardsley, Eugene.

FRIDAY, SEPTEMBER 20

- 7:30 a.m. Breakfast Meeting of House of Delegates.
- 9:00 a.m. Diathermy and Short Wave Radiotherapy. Arthur C. Jones, Portland.
- 9:45 a.m. 1. The Plans of the State Cancer Committee.
2. The Fundamentals of Cancer. Otis B. Wight, Portland.
- 10:30 a.m. Torsion of the Testis. James C. Hayes, Medford.
- 11:15 a.m. Pituitary-Adrenal Relationships. Hans Lisser, Clinical Professor of Medicine, University of California Medical School, San Francisco.
- 12:15 p.m. Luncheon Meeting. Showing of Motion Picture Film, "Activities of the American Medical Association."

- 2:00 p.m. Treatment of Fractures of the Spine. Hubbard T. Buckner, Seattle.
 3:00 p.m. Phases of Rectal Pathology. Banner R. Brooke, Portland.
 3:45 p.m. Differential Diagnosis of Thoracic Disease. Marr Bisailon, Portland.
 4:30 p.m. Problems of the Physician and the State Industrial Accident Commission. Eugene W. Rockey, Portland.
 5:15 p.m. Adjournment.
 7:00 p.m. Annual Banquet (informal). President's Address.

SATURDAY, SEPTEMBER 21

- 7:30 a.m. Breakfast Meeting of House of Delegates.
 9:00 a.m. Business Meeting and Election of Officers.
 10:30 a.m. Preventive Medicine in Private Practice. S. G. Henricke, Portland.
 11:15 a.m. Lantern Slide Clinic on Endocrine Disorders. Hans Lissner, Clinical Professor of Medicine, University of California, Medical School, San Francisco.
 12:15 p.m. Adjournment.
 2:00 p.m. Ninth Annual Oregon Medical Golf Tournament.
 6:00 p.m. Dinner and Awarding of Golf Prizes.

SCIENTIFIC EXHIBITS

1. Treatment of Burns with Tannic Acid and Silver Nitrate. With charts and photographs of patients treated by A. G. Bettman, Portland, Clinical Associate in Surgery, University of Oregon Medical School. Demonstrator: Dr. A. G. Bettman.
2. Studies in Certain Vitamins and Minerals. With charts, photographs, drawings, motion pictures, radiographs, and lantern slides. From the Nutritional Research Laboratories, University of Oregon Medical School by C. Ulysses Moore, Portland, Director. Demonstrator: W. R. Todd, Ph.D.
3. Electrocardiography. With electrostethographic tracings by T. Homer Coffen, Portland, Clinical Professor of Medicine, University of Oregon Medical School; Homer P. Rush, Portland, Clinical Associate in Medicine, University of Oregon Medical School, and Ernest L. Boylen, Portland, Clinical Instructor in Medicine, University of Oregon Medical School. Demonstrator: Dr. Ernest L. Boylen.
4. The Hydrodynamics of Procaine during Spinal Anesthesia. With motion pictures, lantern slides, and radiographs by George R. Vehrs, Salem. Demonstrator: Dr. George R. Vehrs.
5. Medical Illustration. With charts and drawings by Miss Clarice Ashworth, Portland, Medical Illustrator, University of Oregon Medical School.
6. Medical Library Services of University of Oregon Medical School. With books, posters, charts and pictures by Miss Bertha Hallam, Librarian, University of Oregon Medical School. Demonstrator: Miss Bertha Hallam.

WOMAN'S AUXILIARY

The Woman's Auxiliary to Oregon State Medical Society will hold its ninth annual meeting in connection with that of the state society at Gearhart, September 19-21. The Clatsop-Tillamook Counties Auxiliary, under the leadership of Mrs. Leon W. Hyde of Astoria, will have charge of the social affairs.

The following social features have been prepared. On Thursday, September 19, a luncheon will be held honoring members of the Advisory Council, Drs. A. M. Webster of Portland and G. A. Massey of Klamath Falls, and also J. Tate Mason of Seattle, president-elect of the American Medical Association. On Friday, September 20, there will be Founders Breakfast honoring Mrs. J. Earl Else and charter members. On the same day there will be a luncheon honoring Dr. Mabel Aiken of Portland,

president-elect of the National Medical Women's Association, also a tea at the home of Mrs. L. M. Spaulding, following a sight-seeing tour. On Saturday, September 21, there will be state officers breakfast, Mrs. O. C. Hagmeier, chairman. In the afternoon will be a golf tournament.

In addition to this social program, which is in the hands of wives of the Astoria group, will be a program of business directed by the Auxiliary. Reports will be presented and necessary business transacted. A cordial invitation is extended to auxiliary members from Washington and Idaho to attend this annual meeting.

HAZARD OF DINITROPHENOL

During recent years the use of dinitrophenol as a weight reducer has become popular not only under the supervision of the physician, but frequently in an uncontrolled manner by the layman, often with disastrous results. The United States Department of Agriculture has issued a warning to the public concerning the use of this drug. W. G. Campbell, chief of the Federal Food and Drug Administration,* states that blindness from its use has not stopped the employment of the drug in spite of repeated warning. It is claimed that eye cataracts observed in dinitrophenol poisoning develop with a rapidity and malignancy hitherto unknown, resulting in total blindness within a comparatively short time. The symptoms of acute poisoning are listed, such as nausea, stomach and intestinal distress, sweating, flushed skin, high fever, rapid breathing and muscular rigor, followed by death. It is stated that the drug damages the liver, kidneys, heart and sensory nerves, although the menace to these organs has been claimed to be greatly exaggerated by certain writers. It is asserted that it produces agranulocytosis, in the manner similar to poisoning with amidopyrine. This warning has been broadcast to impress the public with the dangers of the use of this drug. Under suitable medical supervision and control, it may be administered without so great a possibility of the above mentioned serious and fatal conditions. Some states have forbidden the sale of the drug except under physicians' prescriptions. It is stated that the Food and Drugs Act is practically inoperative against this public health hazard. The only application of the law is through some misstatement of fact or some false and fraudulent curative claim in the labeling. All members of the medical profession should be constantly alive to the possible dangers in prescribing this drug.

* U. S. Department of Agriculture, Office of Information, Washington, D. C., Aug. 22, 1935.

LISTING IN AMERICAN MEDICAL DIRECTORY

Although the last issue of the American Medical Directory has been recently published, the work of revising and compiling for the next edition has been started. It is stated that after every directory is published complaints are received from many who have not been listed as members or fellows of the American Medical Association. Various reasons may be given for this omission, consisting of various changes of appointments or listings of the doctors concerned. The fault in such cases lies not with the directory officials, but the physicians themselves who fail to report the data concerning them. This is intended as a notification to all members of the American Medical Association that they should promptly notify the secretaries of their county societies when any changes are made which will affect their listing in the American Medical Directory. If such changes are promptly reported there should be very few complaints of such errors in the next issue of the directory.

FEDERAL HOSPITAL LOCATION

For the past few years there have been repeated newspaper publications regarding the location of the proposed federal psychiatric hospital in the Pacific Northwest, for the construction of which the sum of \$2,225,000 has been provided. Many sites have been suggested, some of which were to be donated without cost to the government, while others anticipated sale at specified figures. Strenuous influences have been put forth by representatives of locations in various parts of Washington, Oregon and Idaho and at times certain enthusiasts believed that their particular locations had been selected. A few weeks ago the matter seemed apparently to have been determined, when it was announced that the government had chosen the Larrabee tract adjacent to Bellingham which seemed to fill satisfactorily the requirements as a site for the institution. It was announced without qualifications that this selection had been accepted and construction would begin in due time. Now it is announced that this decision has been revoked and the construction at this site has been blocked through the efforts of opponents who apparently hope for the ultimate selection of a site at another location. There have been few recent government enterprises which have been subjected to more strenuous lobbying and influences than the determination of the location of this institution. Natur-

ally the disappointment is very keen of those who considered the Bellingham site assured and the beginning of construction certain for the future. Under the present circumstances another period of lobbying and anticipation may be expected.

MEDICAL NOTES

INTER-STATE POSTGRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA will hold its international assembly in Detroit October 14-18. All physicians in good standing in their state organizations are invited to attend this assembly, where an unusual clinical and didactic program will be presented, including all branches of medicine, surgery and the specialties. The president of the association is Charles H. Mayo of Rochester who will appear on the program, the chairman of the program committee being George W. Crile of Cleveland.

Over a five-day period papers will be presented by many distinguished members of the medical profession, covering a wide range of topics pertaining to all branches of medicine and surgery. Nearly all the speakers are members of the teaching staffs of practically all the medical colleges of the country, thus combining the characteristics of many phases of medical teaching. Names of the speakers on the program will be found in the advertisement on page 6. The registration fee is \$5. Further information concerning this meeting can be obtained from Dr. William B. Peck, Freeport, Ill.

OREGON

LILLY RESEARCH FELLOWSHIP. The University of Oregon Medical School has become the recipient of an annual appropriation of \$1200, establishing what is known as the Lilly Research Fellowship in the Medical School. The fund is appropriated by the Eli Lilly & Company, manufacturers of medicinal products, of Indianapolis, Indiana.

The Fellowship is established in the Department of Physiology, beginning October 1, 1935, under the direction of Professor George E. Burget to enable the prosecution of specific studies in that field. It enables the appointment of a research fellow who will be selected from the students of the University of Oregon Medical School on the basis of aptitude in research.

EASTERN OREGON DISTRICT MEDICAL SOCIETY held its annual meeting at Ontario, July 27. About forty physicians were present, representing various cities and localities in the eastern part of the state. Among the visitors were J. Tate Mason of Seattle, president-elect of American Medical Association, also E. E. Laubaugh and J. L. Stewart of Boise. In addition to addresses by these men, papers were presented by G. B. McBee of Pendleton, Charles E. Sears, John F. Fitzgibbon and Richard E. Dillehunt of Portland and Lee B. Bouvy of La Grande. The following officers were elected for the ensuing year: president, F. L. Ralston; vice-president, W. K. Ross; secretary-treasurer, J. J. D. Haun, all of La Grande. The next annual meeting will be held at La Grande.

NEW HOSPITAL CONTEMPLATED. The construction of a modern hospital at St. Helens is being considered by Columbia County Medical Society. A thirty-five bed, modern fireproof hospital to cost about \$50,000 has been approved,

provided PWA funds are obtainable. It is expected that this will cover about forty-five per cent of the cost of construction.

HUGH L. BROWN, who has been located at Pendleton for the past five years, being in charge of surgical work at Eastern Oregon Hospital, has settled for practice at Prairie City. He has taken over the practice of D. J. Lawson who has resided there for the past nine years. Dr. Lawson has gone east to follow postgraduate work.

S. G. MORGAN, who has practiced at Astoria for the past eleven years, has located in Eugene. He will practice here in the future, having disposed of his office and home at his former residence.

ELECTED DIRECTORS. Ralph C. Mattson of Portland and G. C. Bellinger of Salem were elected to the board of directors of National Tuberculosis Association at its recent annual meeting.

LYLE M. BAIN of Albany is a graduate of University of Oregon Medical School with subsequent internships in Multnomah County and Doernbecher Memorial hospitals. He has located for practice in his home town.

CITY HEALTH PHYSICIAN. H. W. Steelhammer has been appointed city health physician of Portland to take the place of Verner Ruedy who has recently resigned.

WASHINGTON

AMERICAN ACADEMY OF PEDIATRICS, represented by Region Four, held its fourth annual meeting at Olympic Hotel, Seattle, August 9-10. Region Four includes the states of the Pacific Coast, British Columbia and Hawaii, being one of six divisions of the national organization. Papers were read by Arthur E. Wade, Herbert E. Coe and Edward LeCocq of Seattle; L. Howard Smith and W. H. Bueermann of Portland; Edward J. Barnett of Spokane; Howard Spohn of Vancouver and Franklin P. Gengenbach of Denver, all being on various phases of pediatrics. The morning of the second day was devoted to clinical case reports at King County Hospital. The quality of the papers presented together with the pleasing social features provided a meeting which all in attendance agreed had been of an unusually high character.

BASIC SCIENCE EXAMINATION. At the basic science examination held in Seattle, July 11-12, there were 67 applicants, of whom 52 passed and 15 failed. They were distributed as follows: Medical doctors 54, of whom 49 passed and 5 failed. There were 7 osteopaths, of whom 3 passed and 4 failed. There was 1 drugless healer and 5 chiropractors, all of whom failed. Following this the state board of medical examiners met and issued licenses to 27 physicians by reciprocity, coming from different parts of the country. Licenses were also issued to 22 applicants after examinations by the board.

HOSPITAL DEDICATED. The John Brining Memorial Hospital was dedicated at Dayton, July 21. It has been built at an expenditure of \$75,000 which has been liquidated and there is no indebtedness. It is a fully equipped institution, one story in height, beginning with accommodations for twenty patients. Governor Martin was the principal speaker for the occasion. This institution will accommodate the people of Columbia county and southeastern Washington.

HOSPITAL DIRECTOR. Philip Narodick of Seattle has been appointed director of King County Morningside Hospital for the treatment of tuberculous patients. He succeeds J. D. Morgan who has gone to Palo Alto, Calif. After graduating from University of Illinois Medical School Dr. Narodick carried on tuberculosis work at Municipal Tuberculosis Hospital of Chicago.

HOSPITAL UNDER ERECTION. A modern hospital is under construction at Ritzville by Mr. and Mrs. F. H. Harris. It is being built of brick and stucco with accommodations for about ten patients at a cost of \$12,000. Although privately owned, it will be for the use of any qualified physician.

L. A. FULLERTON, formerly of New London, Conn., has been appointed for a four-year period in Spokane as medical inspector for the Indian Bureau. He was a former resident of Washington. He will succeed C. H. Waring who has been transferred to the hospital at Stapleton, Staten Island, N.Y.

MAX SILVERMAN of Seattle, Lieutenant Commander, Medical Corps, U.S.N., who has been serving as medical examiner for the Marine Corps recruiting office, has been transferred to Washington, D.C. He will take postgraduate training at the Naval Bureau of Medicine and Surgery.

LYOYD SMITH, who has recently completed internship at Swedish Hospital, Seattle, has located in Mansfield. He has accepted the appointment of county physician for Douglas county.

FLOYD L. DUNNAVAN has located for practice at Vancouver, following the specialty of diseases of eye, ear, nose and throat. He has recently practiced at St. Paul, Minn.

JOHN FLYNN, who has recently served as interne at St. Joseph Hospital, Tacoma, has located for practice at Mineral.

HOWARD B. KELLOGG has located for practice in Seattle. He has recently been located at Veterans Hospital at Hines, Ill.

WEDDING. Philip B. Greene of Spokane was married to Miss Marjorie Wilcoxson in Springfield, Ill., August 17.

IDAHO

HOSPITAL CONTEMPLATED. Commissioners of Kootenai county are considering plans for a county hospital at Coeur d'Alene to cost \$100,000 with a fifty-bed capacity. The plan contemplates a bond issue of \$55,000 with a federal grant of \$45,000. This would all go into construction except about \$10,000 which would be reserved for equipment.

W. R. WEST, who has practiced for the past ten years at Rigby, has sold his property and interests and has moved to Idaho Falls. There he will be associated in practice with his brother, J. R. West.

R. I. ROSS, who was reared in Caldwell, has practiced for some time at Sand Point. He has recently located for practice at Caldwell.



OBITUARIES

DR. SIMEON E. JOSEPHI of Portland, Ore., died August 17, after an illness of a few hours, aged 86 years. He was born in New York City in 1849 and moved to Portland in 1867. His first position was that of bookkeeper for Dr. Hawthorne who was in charge of a hospital for the insane at East Portland. He began his medical studies in Portland, but graduated from University of California Medical School at San Francisco in 1877. He then returned to Portland as assistant at the Hawthorne hospital and on death of Dr. Hawthorne was superintendent of the institution until 1883. From 1886 to 1887 he was superintendent of the State Hospital at Salem. He was the first dean of the University of Oregon Medical School, serving from 1887 to 1912. For a number of years he was head of the department of obstetrics. He was the first president of Portland Medical Society, serving in the same capacity for the Academy of Medicine. More than a generation of practicing physicians entertain an affectionate regard for him, not only as a teacher who helped to mold their minds in the best medical training, but also for their personal regard for him as a friend and advisor. He was not only a leader in medicine, but also took an active part in civic and political affairs. He served two terms in the state senate and for a number of years was a member of Portland water commission which established the Bull Run water system which is unsurpassed by that of any other city. He was a trustee of Good Samaritan Hospital for many years, being one of the attending physicians and its treasurer. No physician in the history of Oregon had a wider acquaintance or was more influential during his professional life than Dr. Josephi.

DR. ADOLPH O. LOE of Seattle died July 31, following a sudden attack of coronary thrombosis, aged 63 years. He was born in Wisconsin in 1871. He received his medical degree from University of Minnesota in 1897 and spent the following three years in St. Paul hospitals. He located in Seattle in 1900, where he practiced continuously until the time of his death. By reason of his personal qualifications and ability as a physician and surgeon, he became one of the leading and most respected members of the profession of the city. He was a leader in progressive medical affairs, one who could always be depended upon for the promotion of the best interests of medical practice. His interest in public welfare was shown by his activities in establishing and promoting the Public Health League, with which he was closely connected from its inception. His sudden death is regretted by a large circle of friends, including the medical profession of the city and state.

DR. DAVID O. BEAL died at Montpelier, Ida., August 16, from pneumonia, aged 47 years. He was born in Utah in 1888. After being educated in the schools of Utah, he obtained his medical degree from Washington University School of Medicine, Baltimore, in 1912. He practiced in Idaho and Nevada until the beginning of the World War when he enlisted and served in the British army. He was severely wounded by shrapnel and after recovery located for practice at Afton, Wyo. He located for practice at Montpelier in 1921. He made many friends who deeply regret his death.

DR. FRANKLIN M. LEITCH of Moscow, Ida., died August 6, following an illness of several weeks, aged 84 years. He

was born at Charleston, Ill., in 1850. He graduated from Homeopathic Medical College of Missouri at St. Louis in 1889. He practiced for a time in his home town and later moved to Idaho, locating near Moscow. He moved to the latter city in 1909. For eleven years he was city and county health officer. He and Mrs. Leitch celebrated their golden wedding anniversary last December.

DR. WILLIAM H. EHLEN of Seattle, Wash., died August 22 after a year's illness, aged 69 years. He obtained his medical degree from University of Oregon Medical School in 1890. For nearly forty years he practiced at Genesee, Ida. After retiring from practice, he moved to Seattle where he made his home.

DR. JOHN A. TRUE of Spokane died July 26 from cerebral hemorrhage, aged 47 years. He graduated from the University of Michigan Homeopathic Medical School in 1912. After practicing at Toledo, Ohio, he moved to Spokane in 1920, where he practiced until the time of his final illness.

TREATMENT OF DIABETIC COMA. Henry J. John, Cleveland (*Journal A. M. A.*, Aug. 24, 1935), asserts that diabetic coma like any major emergency must be dealt with promptly, efficiently and adequately. One should bear the following conditions in mind in making a differential diagnosis: hypoglycemia, acute infections in nondiabetic children, meningitis, uremia, brain tumor, thrombosis and embolism. If one tries to visualize the physiologic upset that accompanies a state of coma, the treatment is easy and obvious. Three primary factors must be dealt with: 1. The diabetic complex of hyperglycemia, an excess of ketone bodies circulating in the blood stream and damaging the organism, and a low alkali reserve. The administration of insulin rectifies these three abnormalities. 2. The tissues are depleted of water because of the increased excretion of water due to the high blood sugar content. The body tries, so to speak, to wash out the excess sugar from its tissues, and water unfortunately goes with the sugar, leaving the body in a sad state of dehydration. This in turn means a reduced blood volume and low blood pressure. The blood is concentrated and shows a high red cell count and high hemoglobin value. The blood urea content is high probably for the same reason and because of the deranged metabolism, and the blood chloride value is low. It is obvious what will rectify this part of the picture—an abundance of fluid and salt given by hypodermoclysis or intravenously. 3. The tissues are unable to utilize carbohydrates adequately because of a lack of insulin, a lack of water and poisoning by ketones. All three of these conditions exhaust the reserves of energy. Insulin, fluids and alkalis administered in small quantities will rectify these abnormalities. The causes of coma most frequently encountered are inadequate treatment, omission of insulin, infection, neglected diet or dietary indiscretion, hypothyroidism, a simple operation and nervous shock.

ALLERGY AND CATARACTS. Ruby K. Daniel, Rochester, Minn. (*Journal A. M. A.*, Aug. 17, 1935), states that it has long been observed that conjunctival hypersensitivity is not an uncommon observation among patients who have the allergic manifestation of asthma, hay fever or vasomotor rhinitis. Episcleral, scleral and uveal changes have been reported to be allergic. The crystalline lens is not exempt from the influence of allergens which may be causing changes in other tissues of ectodermal origin. The ectodermal epithelium of the ciliary body is responsible for the formation of the aqueous fluid, which in turn nourishes the lens and carries away the waste products. A fine change in the function of these epithelial cells of the ciliary body, in the content of the aqueous fluid or in the level of permeability and selectivity of the capsule of the lens can readily be reasoned to interfere with the efficient metabolism of the lens and its transparency, thereby producing a cataract in an otherwise normal eye.

STATE DEPARTMENTS

OREGON

DR. SIMEON E. JOSEPHI

Portland, Ore., Aug. 23, 1935.

Dr. Simeon E. Josephi is no more. Everyone who was privileged to know him mourns his passing. Each man during his stay on earth hews for himself his particular position in the community. Dr. Josephi's position was unique and outstanding in many ways. One was struck by his stately appearance, his neatly trimmed beard which he always wore, the kindly expression of his eye, the warmth of his handshake, the mellowness of his voice and the wisdom of his words.

Dr. Josephi's influence on the Pacific Northwest is greater than any estimate that can be made at present. As one of the organizers of and Dean of the University of Oregon Medical School for twenty-five years, he was in a position which influenced the lives and careers of many who became physicians, and through these men, by means of the education which they received in the school of which he was the head, his influence reached perhaps every person in the Pacific Northwest, for the University of Oregon has always maintained a school which gave to its students every educational advantage. On the beautiful campus the medical school is a monument to his foresight, wisdom and energy.

While the Deanship of a school of learning occupies a man's time rather completely, yet Dr. Josephi found time almost single handedly and against great oppositions to establish in the city of Portland the Bull Run water system which furnishes probably the purest city water supply in the world. He realized the effect on the community of impure water and set about to supply a source which would be pure, sufficient in quantity and available for an indefinite period. The fight was bitter and it was long, but Dr. Josephi's indomitable spirit carried through and under his leadership pure water became a fact. His efforts on behalf of this gigantic task was undertaken without thought of personal reward, except that of the knowledge of a duty well done.

Dr. Josephi was an organizer. He found time to assist in the organization in 1884 of the Portland Medical Society, now the Multnomah County Medical Society, and served as its first president and as its treasurer from 1893 to 1901 inclusive. He was one of the three remaining charter members. He was also one of the organizers of the Portland Academy of Medicine and served as its first president.

He was for a number of years superintendent of the State Hospital for the Insane then located in Portland, and throughout his long and illustrious medical career was an authority on diseases of the mind. His lectures on obstetrics at the University of Oregon Medical School from their inception were marked by their clarity and eruditeness, and it has often been said that the graduates of this school have been especially well trained in this branch of the healing arts.

On the fiftieth anniversary of Dr. Josephi's graduation from medical school, the Portland City and County Medical Society honored him with a dinner, and the Alumni Association of the Medical School called their meeting of that year the "S. E. Josephi Jubilee Meeting." It is planned that their next meeting in March shall be called the same.

It is fitting that a life-sized oil painting of Dr. Josephi adorns the wall of the University of Oregon Medical School library. His life was an inspiration to the young physician; he stood for all things which have made medicine great; he was honest, fearless and learned in all branches of knowledge. He gave the best that was in him and always took pleasure in communion with his colleagues.

He served on the Board of Trustees of the Good Samaritan Hospital for many years, during a major portion of which time he was treasurer, and he was a member of the state legislature and held many other civic positions of honor and trust.

Dr. Josephi was a versatile man but he did all things well. His funeral was largely attended by lay and professional friends, of whom he had legions, both from Portland and from more distant parts of the state. The beneficent influence of Simeon E. Josephi, M.D., will remain long in the community in which he lived, which he loved and which loved him so well.

MEDICAL CARE OF UNEMPLOYED AND INDIGENT

During the past month the Executive Committee of the Council, as well as the Committee on State Industrial Affairs and the Medical Advisory Committee to the State Relief Committee, have devoted the major portion of their attention to impending changes in prevailing federal and state plans of providing medical care for the unemployed and indigent.

Since October, 1934, the administration of medical relief to the unemployed and their dependents under a plan based upon "free choice" of physician and the preservation of the traditional physician-patient relationship has been carried on in most Oregon counties in a manner which has been mutually satisfactory to relief officials and the medical profession. In Multnomah County the plan has not been in operation, owing to the availability of the University of Oregon Medical School Outpatient Clinic, the Multnomah County Hospital and the staff of the County Physician. In most other counties, however, medical services for the unemployed have been rendered largely by private physicians who have been compensated from relief funds on a basis of customary minimum fees less a discount of 50 per cent.

The creation of the Works Progress Administration, which it is anticipated will remove from the relief rolls a large percentage of the able-bodied, will result in substantial changes in the handling of medical relief. Medical care for WPA employees who are injured in the course of employment will be cared for under regulations already promulgated by the U. S. Employees Compensation Commission. These regulations provide that injured workers shall be cared for in federal medical establishments where such facilities exist and are not in full use by other designated beneficiaries of federal medical service. This plan presumably anticipates the use of the Veterans Administration Facilities at Portland and Roseburg and the personnel of the U. S. Public Health Service at Portland.

In all other parts of the state, however, the WPA State Compensation Officer or his county representative is authorized to make arrangements for medical care by private

physicians at customary minimum fees. It is, of course, desirable that all qualified physicians in each community shall be eligible to render this service. The several committees of the Society who are concerned with this matter have held numerous conferences with Mr. E. J. Griffith, WPA Administrator for Oregon, and his assistants, concerning the application of the promulgated regulations and are hopeful that the widest possible participation by private physicians will be granted. Lists of all active physicians in private practice have been compiled by counties and supplied to WPA headquarters at Portland for use throughout the state.

Plans for providing medical care to WPA workers for injuries and sickness not related to employment and for service to their dependents, as well as the unemployable who remain on direct relief, have not yet been promulgated at Washington. For the present, it is anticipated that the state and county relief committees will continue to provide this care under the existing "free choice" plan with the possibility that the federal, state and county health departments may ultimately assume administrative direction of medical care for the indigent. In any event, irrespective of changes in administrative machinery or in the distribution of the costs between federal, state and county governments, the principles of "free choice" and nominal compensation for the private physician which have been fought for by

the American Medical Association, the Oregon State Medical Society and other state associations will be retained. Further developments in the field of medical relief of vital interest to every physician in the state will be reported as the Society's committees proceed with their efforts.

The Eastern Oregon Medical Society which met recently in Ontario was marked by a large attendance and the excellence of its papers. Dr. J. Tate Mason of Seattle, President-elect of the American Medical Association, was an honored guest. His address was enjoyed by all who heard him.

The committees are working hard to perfect plans for the Annual Meeting of the Oregon State Medical Society at Gearhart, September 19-21. The outlook is for the largest meeting the society has ever held and for a program of the highest order. The society is to be congratulated on holding their meeting at Gearhart after the vacation season has closed. Thus will the society have practically to itself the beautiful Gearhart hotel. In this way all the facilities of this great caravansary will be at the pleasure of the members without crowding by the presence of a summer crowd. Every county society in the state is making plans for having a large delegation present. Hotel reservations should be made now.

A. G. BETTMAN, *Editor*.

WASHINGTON

LETTER TO WASHINGTON MEMBERS

Yakima, Wash., Aug. 24, 1935.

Members of Washington State Medical Association: Another year has rolled around; another milestone in medicine has been passed. This last milestone has registered further advances in every branch of medicine throughout the world.

Washington State Medical Society has closed a very successful year under the leadership of the retiring President, Nathan L. Thompson of Everett. The forty-seventh annual meeting must go down in history as one of the best meetings ever staged by the Association. Dr. Thompson is to be commended for his capable leadership. His committeemen deserve praise for the work that they have done. Their untiring efforts in research and society work are just another example of what cooperation will do.

We believe that Dr. Thompson and his committeemen of Everett have set a precedent for all of us, and I here and now enlist the help of every individual and each component group to carry on the work of our Association, to advance organized medicine, and to defeat the attempts of any and all to promote any form of socialized medicine.

I hope each of you members will get into the harness and help your president, officers and committeemen. If you are a member of a committee, your efforts will be appreciated. If you are not a committee member, don't feel that you have no work to do, for all of us are open to suggestions, and I am sure that any of us will appreciate helpful ideas.

There are several problems that I hope will be improved or solved during the coming year, problems that I will present to you through these pages from month to month. I shall be very glad to hear from you personally upon any of these or other subjects.

I also wish to take this opportunity of thanking the Trustees and House of Delegates for the honor and privilege of heading your Association for the coming year. I hope their wishes in this matter meet with your approval. Soliciting aid from all of you for the best interests of our Association, I am,

Sincerely yours,

DELMAR F. BICE,

President Washington State Medical Association.

DIAGNOSIS OF CONGENITAL SYPHILIS. A. H. Parmelee, Oak Park, Ill., and L. J. Halpern, Chicago (*Journal A. M. A.*, Aug. 24, 1935) point out that a large number of infants born of mothers known to be syphilitic show no clinical symptoms of the disease during the first weeks of life. Likewise a comparatively large number give negative serum reactions. Roentgenologic evidence of bone lesions characteristic of congenital syphilis is the only other known diagnostic sign of the disease. They studied a series of infants born of mothers known to have syphilis by making periodic clinical, serologic and roentgenologic examinations during the first year of life. The study shows in a striking manner the predominant importance of the roentgenologic

evidence of osseous syphilis in the diagnosis of congenital syphilis during early infancy. During the new-born period there was suggestive clinical evidence of infection in 19 per cent of the cases, serologic evidence in 23 per cent and roentgenologic evidence in 44 per cent; at 6 weeks the figures are 30 per cent, 8 per cent and 61 per cent, and at 3 months 25.7 per cent, 8.6 per cent and 63 per cent, respectively. It seems that a positive diagnosis can be made in about 30 per cent and a probable diagnosis in an additional 30 to 40 per cent of the cases during the first three months. After three months the chances for diagnosis fall off rapidly, so that by the sixth month a positive diagnosis can be made in only about 15 per cent and a probable diagnosis in an additional 40 per cent.

BOOK REVIEWS

THE DISEASES OF THE ENDOCRINE GLANDS. By Hermann Zondek, M.D. (Berlin). Director of the Medical Division, Bikur Cholem Hospital, Jerusalem, etc. Third Edition Revised and Enlarged. Translated by Carl Prausnitz, M.D. (Breslau), M.R.C.S. (Eng.), L.R.C.P. (Lond.). Honorary Research Fellow, Victoria University of Manchester, etc. 492 pp. \$11. William Wood & Co., Baltimore, 1935.

The English translation of this volume is a real treat for the many physicians who do not easily read German. Through wide experience in clinical medicine and much research in this new and intriguing field, the author has developed a keen appreciation of the interplay of endocrine factors in medicine. His presentation of the many facts which have been revealed in conjunction with fundamental hypothesis that run through the book cannot fail to bring to the reader a fuller recognition of the importance of this lately developed phase of medicine.

This volume emphasizes the fact that endocrinology is not an entity in the practice of medicine, but one of the factors which must be recognized. This idea is expressed in the author's words in this manner: "The description of this disease (Grave's disease) in the present book clearly brings out the fact that endocrinology cannot be comprehended apart from general medicine nor, with certain limitations, internal medicine apart from endocrinology." The fact is stressed that "the great discoveries in physiology obtain their full significance only when brought into line with biology and experimental medicine."

Hypotheses which help much in clarifying many questions that arise in the practice of endocrinology are outlined and carried throughout the presentation. These, together with illustrative cases almost entirely from the author's clinical practice, make the book a recital of personal experiences rather than a compilation of opinions garnered from the very extensive literature. The translation is exceptionally well done. The book is very readable. Though containing much that has been presented before, it offers to the clinician an up-to-date, stimulating, and the most clarifying exposition of endocrine problems that has come from the press.

C. F. DAVIDSON.

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. A complete Dictionary of the terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, Veterinary Science, Biology, Medical Biography, etc. By W. A. Newman Dorland, A.M., M.D., F.A.C.S., Lieutenant-Colonel, M.R.C., U. S. Army; Member of the Committee on Nomenclature and Classification of Diseases of the American Medical Association. With the Collaboration of E. C. L. Miller, M.D., Medical College of Virginia. Seventeenth Edition, Revised and Enlarged. Octavo of 1573 pages with 945 illustrations, including 283 portraits. Flexible and Stiff Binding. Plain, \$7.00 net; Thumb Index, \$7.50 net. Philadelphia and London: W. B. Saunders Company, 1935.

Every medical practitioner needs the services of a medical dictionary, without which he cannot carry on his work with complete satisfaction. The present edition of this dictionary, since the last edition three years ago, has collected several thousand of the newest terms and definitions. While it does not purport to be an encyclopedia, it presents information in concise and convenient form which is indispensable. An important feature is the collection, under

separate headings, of condensed information which could otherwise be secured only by laborious efforts. Thus, all the muscles are arranged alphabetically with the origin, nerve supply and action listed of each. Likewise, nerves are similarly presented, giving the function, origin, distribution and branches of each. Also, under the heading "disease" is briefly stated the definition of each with concise information concerning it. Pronunciation of medical terms is a constant source of bickering among groups of doctors. One is often surprised to learn that he has always incorrectly pronounced a familiar word which he will find corrected in this volume. An interesting feature is the collection of portraits of the leading practitioners over a long period of years. These and many other features make this a very valuable publication and worthy of one's possession.

NUTRITION OF MOTHER AND CHILD. By C. Ulysses Moore, M.D., M.Sc. (Ped.), F.A.C.P., Director Nutritional Research Laboratory, University of Oregon Medical School, etc. With 46 illustrations. Fourth Edition, Completely Revised and Rewritten. 258 pp. \$2.00. J. B. Lippincott Company, Philadelphia and London, 1935.

The author of this book, well known to most of our readers, has prepared a very useful publication which can be read with profit by any mother. It is stated that one-fifth of all deaths occur during the first year of life, more than one-half of these being directly due to nutritional disturbances. Emphasis is placed on breast feeding, vitamin and mineral content of the diet. The purpose of the book is to teach mothers how to render their families less subject to disease. New information pertains to allergy, the acid-base balance, mineral metabolism, protein requirements and vitamins. Chapters also deal with diet during pregnancy and lactation, breast feeding and how to increase the breast milk. Also artificial feeding is entered into with some detail. The chapters on faulty diets and common fallacies in the care and feeding of children can be read with profit by every mother. Many useful suggestions are offered which lack of space forbids mentioning. The book can be commended for the use of mothers before and after childbirth.

FAILURE OF THE CIRCULATION. By Tinsley Randolph Harrison, M.D., Associate Professor of Medicine, Vanderbilt University School of Medicine, Nashville, Tennessee. 396 pp. \$4.50. The Williams & Wilkins Company, Baltimore, 1935.

This book relates the clinical and experimental observations of the author concerning the pathogenesis of circulatory disorders. It represents much painstaking original investigation. Circulatory failure is classified under three headings: (1) the hypokinetic syndrome, under which term is included the various forms of heart failure, as hematogenic, neurogenic, vasogenic and cardiogenic types; (2) the hyperkinetic syndrome or overactive heart as seen in hyperthyroidism, effort syndrome, severe anemia and fever; (3) the dyskinetic syndrome, designating the picture of cardiac decompensation. What this classification will add to our understanding of cardiac pathology is questionable, but it appears to be a move in the right direction.

The chapter on angina pectoris is a classic. The book is very well written and reflects the excellent work of the cardiac department of the Vanderbilt School of Medicine.

VON PHUL.

GYNECOLOGICAL AND OBSTETRICAL TUBERCULOSIS. By Edwin M. Jameson, B.S., M.D. Attending Surgeon, Sarinac Lake General Hospital. Illustrated with 31 engravings. 256 pp. \$3.50. Lea & Febiger, Philadelphia, 1935.

The author presents in a concise form the results of a study of tuberculosis insofar as it may influence the pelvic organs. The volume is arranged in three parts: (1) The effects of pulmonary tuberculosis on the physiology of the female genital organs. (2) The infection of the genital organs and peritoneum. (3) The problem of pregnancy in a tuberculous woman.

The comparison of gynecological complaints and findings and the changes in menstruation in tuberculous and non-tuberculous patients is gone into at some length, and the relation between menstruation and the development of pleural exudates in artificial pneumothorax is fully stated. Much evidence of value is presented concerning the manner in which the tubercle bacillus gains access to the pelvic organs. The chapter dealing with treatment of pelvic tuberculosis both medically and surgically has much to offer. The author favors radical rather than conservative surgery, since the guiding principle of the procedure is to attempt to remove completely a tuberculous focus which he considers to be localized in the uterus and oviducts and primary in many cases. In part three, an attempt is made to consider the problem of pregnancy and tuberculosis from the physiological and obstetrical aspects and to arrive at tentative conclusions upon which the conduct of a given case may be intelligently based. Of special interest is the discussion of the advisability of permitting pregnancy to occur in the healed cases and the handling of pregnancy in the presence of active tuberculosis. Probably no single volume presents this subject in such a concise form.

FRIEND.

LIVING ALONG WITH HEART DISEASE. By Louis Levin, M.D., Cardiologist to the St. Francis Hospital and New Jersey State Prison Hospital, Trenton, N. J., etc. 126 pp. \$1.50. The Macmillan Company, New York, 1935.

The purpose of this volume is to convey to the lay reader a simple explanation of various phases of heart disease for the purpose of instilling a sane optimism in his philosophy of this disorder. In the mind of many a patient, when notified that he has heart disease, sudden and immediate death is the horrible vision which he has in mind. If he has the opportunity of perusing this volume, he can develop a sane outlook on future life, with a realization that he probably has a chance of years of comfort and usefulness. The author begins with an attempt to dispel the fear of heart disease, defining it and describing the various types of organic disease. The term "leaky heart" has probably brought terror to many an individual which can be removed by rational explanation. Under treatment the author emphasizes the necessity of rest, moderation in activity, the importance of relaxation and removal of focal infections. Overmedication is deplored, which the wise physician will naturally control. There is a series of questions and answers which will convey useful information to any reader. This book can be commended for general use.

LILLY RESEARCH LABORATORIES DEDICATION. Indianapolis, Ind. 128 pp. 1935.

This volume records many interesting features connected with the formal opening of Lilly Research Laboratories at Indianapolis. It commemorates more than a half century of research work by the institution founded by Mr. J. K. Lilly who presided at this celebration. There was a notable

gathering of distinguished physicians and scientists, including Sir Henry Dale, director of National Institute for Medical Research, London; Sir Frederick Banting of Toronto and Joslin, Minot, Lillie, Whipple, Voegtlin and Clowes, all of whom were speakers at the official dinner. Among the addresses delivered one of the most fascinating was by Banting who told "The Early Story of Insulin," describing the first experiments and the many ingenious devices practiced by himself and others leading to the final development of insulin. The Lilly Company played a prominent part in producing this result.

Joslin graphically described the boon brought to more than two million people in the United States alone whose lives have been spared and prolonged by this discovery. He told of Miss Mudge, the first diabetic patient in New England, whose weight in 1922 was 69 pounds, now an active and able bodied woman. Dale discussed in an entertaining manner "Chemical Ideas in Medicine and Biology," covering many phases of this subject in relation to the human body. Various speakers paid tribute to the scientific research of the Lilly Company, demonstrating the outstanding part which it has maintained for many years in the development of scientific medicine. From the publisher's standpoint this is a beautiful volume.

EMOTIONS AND BODILY CHANGES. A Survey of Literature on Psychosomatic Interrelationships 1910-1933. By H. Flinders Dunbar, M.D., Ph.D. Departments of Medicine and Psychiatry, Columbia University. 595 pp. \$5.00. Columbia University Press, New York, 1935.

This volume is a complete survey of the subject, analyzing in considerable detail the psychosomatic interrelationship of the several systems of the body, that is, nervous system, musculature, endocrines, general metabolism, cardiovascular, respiratory, gastrointestinal, etc. The work is no doubt the most complete survey of the subject that has so far appeared. After reading the book one cannot help but feel that this long neglected branch of medicine is beginning to receive the serious attention of the profession that it deserves. The psychosomatic interrelationship long viewed with skepticism, if not absolute suspicion by the organic minded physician, is rapidly receiving the consideration of forward medical thinkers. Medical practice of the future will more and more be forced to a serious consideration of this subject. This volume is not one to be read through in an evening but one that should find a sympathetic place in the library of the thoughtful and studious.

CLANCY.

NEW AND NONOFFICIAL REMEDIES, 1935. Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1935. Cloth, \$1.50. 510 pp. Chicago: American Medical Association, 1935.

The Council on Pharmacy and Chemistry performs a valuable service to the medical profession in the annual publication of this volume, in which are listed the preparations which they have found acceptable for general use. Articles are listed only after careful investigation and proving their pharmacologic and therapeutic values. Although the volume necessarily increases in size each year by the adoption of new preparations, certain ones are omitted when found not to comply with requirements. Thus in this volume certain acidophilus preparations and antiseptics do not appear, owing to their failure to meet requirements of the Council. This is a valuable book for reference, if one is uncertain as to the dependability of new preparations. At the back

of the volume is an index to proprietary and unofficial articles not included, with references to published articles explaining their rejection from this volume.

OBJECTIVE AND EXPERIMENTAL PSYCHIATRY. By D. Ewen Cameron, M.B. and Ch.B. (Glas.), D.P.M. (London). Physician in Charge, Reception Service Provincial Mental Hospital, Brandon, Man., etc. 271 pp. \$3.00. The Macmillan Co., New York, 1935.

This book represents a compilation of the various objective tests and approaches utilized in the examination and study of patients in the field of psychiatry. The tests discussed fall in two classes: (a) those dealing with a quantitative determination of the psychic factors, (b) laboratory procedures dealing with a determination of the physiologic functions. In addition a chapter on heredity, constitution, pathology and statistical methods round out the volume.

This work recommends itself as a handbook for bibliography. Aside from the chapter dealing with a critical discussion and evaluation of the various intelligence tests, the book is lacking in any appraisal of the various test results.

HACKFIELD.

ANNUAL REPRINTS OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY of the American Medical Association for 1934, with the Comments That Have Appeared in *The Journal*. Cloth. Price, \$1. Pp. 135. Chicago: American Medical Association, 1934.

In this book appear in alphabetical order the preparations which have been rejected by the Council on Pharmacy and Chemistry during the past year. The explanation for such action is given in each case. If one desires satisfactory, scientific reasons for a certain preparation being unacceptable, he will find it in this volume.

1000 QUESTIONS AND ANSWERS ON T.B. Edited by Fred H. Heise, M.D., Medical Director, Trudeau Sanatorium. 232 pp. 75 cents. *Journal of the Outdoor Life*, New York City, 1935.

In the cure of tuberculosis education of the patient stands first in the course of treatment, followed by the necessity of rest, hygiene, food and other influences. This volume is intended for the education of the patient who has an inquiring mind. The book consists entirely of questions and answers, in the course of which explanations are offered as to heredity, infection, immunity, symptoms, treatment and other phases of the disease. The question of fatigue, sweats, rapid pulse, fever are discussed with other common symptoms. In the patient's desire for recovery treatment naturally occupies much space in discussion. Medical, surgical, roentgen ray, and other forms of treatment are brought out in questions with suitable answers. Much information is obtainable from this volume.

TRUTHS ABOUT MEDICINE PROPAGANDA FOR REFORM

Dinitrophenol Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that despite the warnings of investigators and a report issued by the Council, dinitrophenol has been used extensively in the treatment of obesity and not always with the necessary precautions. About twenty commercial concerns are furnishing dinitrophenol or mixtures in which this drug is the active principle. Some smaller concerns have sent samples of the drug unsolicited to physicians and in the accompanying literature have minimized the dangers of its use. It is not surprising, therefore, that undesirable and even serious toxic manifestations of the drug have been reported. Up to the present time six deaths following the administration of dinitrophenol have been reported. In most of the patients,

death occurred within twenty-four hours of the onset of toxic symptoms such as dizziness, dyspnea, fatigue, pyrexia and excessive perspiration. The Journal has repeatedly indicated that the sale of dinitrophenol should be restricted to physicians' prescriptions and that the widespread use of the drug in the treatment of obesity should await further study in laboratories and clinics. The use of the drug should be limited to carefully selected cases. Patients with diabetes, nephritis and diseases of the liver and heart should not be given the drug. The Council has suggested that restrictions be placed on the sale of dinitrophenol and reducing mixtures containing dinitrophenol in this country and that the use of the drug be restricted to selected patients under the observation of properly trained physicians. The use of dinitrophenol by all others should await further careful experimentation in the laboratory. The Council voted that dinitrophenol and brands of dinitrophenol be not accepted for inclusion in this report explaining its position in the matter. As the Council's report was going to press reports were received of patients afflicted with cataract following the use of dinitrophenol. (*J. A. M. A.*, July 6, 1935, p. 31.)

Sodium Arsphenamine and Sodium Diarsenol Omitted from N.N.R.—The Council on Pharmacy and Chemistry reports that sodium arsphenamine was devised a number of years ago because of reactions due to the difficulty of proper alkalization of arsphenamine. At that time it was thought that this preparation dissolved in distilled water corresponds to the alkaline solution of arsphenamine. The use of sodium arsphenamine has steadily declined. Therefore, since the acceptance of sodium diarsenol (Diarsenol Co., Inc.), a brand of sodium arsphenamine, expires with the close of 1935, the Council deemed it advisable to send a questionnaire to a number of syphilologists asking their views as to the value of sodium arsphenamine. The view expressed in the replies received was practically unanimous that the drug deserves no place in present-day syphilis therapy. The Council therefore voted to omit sodium arsphenamine and the accepted brand, sodium diarsenol, from New and Non-official Remedies. (*J. A. M. A.*, July 6, 1935, p. 33.)

Dermal Absorption of Vitamin D.—Several years ago, experiments on rabbits and rats were reported suggesting that vitamin D was absorbed through the skin. Irradiated impure cholesterol suspended in cottonseed oil and applied to the depilated skin on the backs of the experimental animals completely protected them from rickets. Recently similar results have been obtained in rats administered viosterol by inunction. One investigator has observed that the application of viosterol in either a liquid petrolatum or a wax base to the tail alone permitted the absorption of sufficient amounts of the antirachitic factor to prevent the development of rickets. Further confirmatory evidence has been obtained on rats fed a standard rachitogenic diet and given inunctions of viosterol in an ointment base on areas of skin from which the hair had been removed by a sulphide depilatory. Both roentgenograms and "line tests" showed that the animals thus treated were completely protected from rickets, whereas controls receiving inunctions of irradiated liquid petrolatum developed the condition. The practical value of this method of administering vitamin D remains to be determined. It may prove useful in infants and in subjects lacking the ability to utilize liquids administered orally. (*J.A.M.A.*, July 6, 1935, p. 36.)

"Dyно" Not Acceptable as a Proprietary Name for Dextrose.—Some years ago the Council on Pharmacy and Chemistry had before it the consideration of the brand of dextrose—U.S.P. marketed by the Corn Products Refining Company under the proprietary name "cerelose." The product had been presented to the Committee on Foods. In the acceptance by the Committee on Foods of products used both as foods and in the treatment of disease, the name must meet the requirements of the rules of the Council. The Council ruled that the proprietary name cerelose could not be recognized as a name for the well known substance dextrose. Later, the Corn Products Refining Company submitted its dextrose under the name "dyно." The Council reaffirmed its stand concerning the use of a proprietary name for dextrose. The Council also held certain of the

advertising claims misleading in that they suggest that dextrose is superior as a food to cane sugar. Since the firm has made no agreement to discontinue the use of the proprietary name "dyno," the Council authorized publication of an explanatory statement. (J.A.M.A., July 13, 1935, p. 119.)

The Bactericidal and Bacteriostatic Effects of Mercurochrome.—The comparative evaluation of antiseptics involves many difficulties. Adequate standard methods have not yet been developed; consequently studies in this field by different workers are rarely comparable. This has led to great confusion and much controversy. An article by Justina H. Hill of the Brady Urological Institute (whence mercurochrome originated) concerning the action of mercurochrome in comparison with some other preparations on normal human skin and in infected wounds in animals, appears in The Journal, July 13, 1935, p. 100. Miss Hill presents an extensive series of experiments on the comparative bactericidal and bacteriostatic effects of 2 per cent aqueous and 2 per cent acetone-alcohol-aqueous solutions of mercurochrome and of tincture of iodine applied to normal skin. She concludes from her investigations that the acetone-alcohol-aqueous solution is superior for this purpose to the aqueous preparation, and that the acetone-alcohol-aqueous solution, under the conditions of her tests, exerted greater bacteriostatic effects than 7 per cent tincture of iodine. Comparative studies on the effect of the two preparations of mercurochrome, 7 per cent tincture of iodine, tincture of merthiolate, aqueous solution of merthiolate, tincture of metaphen, neutral acriflavine in salt solution, and hexylresorcinol solution, on subcutaneous wounds inoculated with staphylococcus aureus, indicated that the 2 per cent aqueous solution of mercurochrome was superior to all the others in reducing the number of organisms and in producing the least interference with phagocytosis. It appears from other studies which have been made that most workers have found mercurochrome to be a relatively weak antiseptic. This is not contradicted by the data presented by Miss Hill; the results of her investigations, so far as they appear to be fully valid, supplement rather than conflict with those of the other studies. It must be appreciated that the alleged superiority of any antiseptic, and, in this case, of mercurochrome, is dependent on the conditions under which this superiority was demonstrated. The consensus appears to be that mercurochrome is a moderately active antiseptic; it is relatively nonirritant and it has a certain definite but quite limited usefulness in the prevention and treatment of infections. (J.A.M.A., July 13, 1935, p. 123.)

Diabeticine.—The Bureau of Investigation reports that William Lee Thomas and Arthur S. Huyck have been engaged in the sale through the mails of a product fraudulently represented as a cure for diabetes, known as "diabeticine." The two men did business under the trade name, first, "Illinois Diabeticine Company" and later "Artlee Remedy Company." Investigation seems to show that diabeticine is, apparently, nothing more than chopped-up wild carrot (popularly known as Queen Anne's lace). This puts the preparation in the class of ninety-nine out of every hundred quack "diabetes cures," namely, that of a diuretic. On June 18, 1935, Postmaster General James A. Farley issued a fraud order closing the mails to the Illinois Diabeticine Company because it is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises. According to the diabeticine advertising, the product was said to be "derived from a plant which has a highly therapeutic value in the treatment of diabetes mellitus." Tests made by government experts proved that the preparation would not "purge the blood of its excess sugar" as claimed, nor would it "drive the excess sugar from the blood stream through the kidneys." They found, also, that, contrary to the claims of the Diabeticine concern, the preparation would not revive or stimulate the islands of Langerhans of the pancreas to increased action. Expert medical testimony in the case regarding the claims and representations made for Diabeticine was to the effect that the preparation would not afford any relief whatsoever, either immediately or gradually, in the treatment of diabetes.

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ADDRESS

PERTINENT SUGGESTIONS TO THE WASHINGTON PROFESSION*

NATHAN L. THOMPSON, M.D.
EVERETT, WASH.

Following the mandates of the By-Laws of our Association, it becomes my duty to report to you on the work that has been done by your President during the past year, the present state of affairs in the Association and to make recommendations for the future. I wish first to thank you again for the honor you conferred upon me and Snohomish County Medical Society by electing me to this high office, the highest honor that could be given a member of the State Association.

Your other officers and committees will all present reports to the House of Delegates. These will be published in an early edition of NORTHWEST MEDICINE and I commend them to you. Suffice it to say that, without the loyal cooperation of these various committeemen and other officers, little could be accomplished by your President or your Association.

The appointment of these committees is a real task. To insure that these may be widely representative, they have grown from time to time beyond the limits of practicability. I would, therefore, recommend that the number of committees be somewhat reduced, and the number of men on each committee reduced to not more than five or seven

with a majority in one part of the state so that meetings could be more easily held.

Early in the year the President of Oregon State Medical Society suggested that space in NORTHWEST MEDICINE be set aside so that the work of the Association might be reviewed each month in a news letter from the President or other officer of the Association. While the President or Secretary is in the best position to do this, I feel that this department of our journal might be enlarged to give opportunity for any committee to bring matters pertaining to its work before the membership. I hope the editor has had some way of learning whether the venture was worth while this year. Without consulting the editor I wish to suggest that space for news items and reports of county society meetings is not used as much as I feel it should be. This would be better accomplished if county secretaries were continued in office year after year. The societies should select a secretariially minded man and make it worthwhile for such a man to continue in office.

Your President has visited nearly all of the smaller county societies and has contacted officers of the three larger ones. I am sure these contacts are of value in getting points of view from which policies may be evolved that will be mutually helpful. I found most of the societies holding good meetings but I feel that most of them do not furnish enough of their own programs but rely on the larger centers. In this connection I have recommended to the various committees that they try to

*President's Address read before the Forty-sixth Annual Meeting of Washington State Medical Association, Seattle, Wash., Aug. 12-14, 1935.

work up programs along the lines of their studies and take them to the county meetings. I hope the time will come when the State Association may offer still more to the county societies as, for instance, sponsoring local postgraduate lectures.

Most of the complaints that I have heard were that the State Association should do something to curb the unethical practices of the commercially minded in our ranks, referring specifically to the unethical contract practice that has existed among us for a long time, but which in these later days has become so commercialized that it is the strongest force driving us toward socialized medicine. I am more convinced than ever that the rank and file of doctors simply want free and ethical competition but, if contracts there must be, they should be in the name of the county society and all doctors participating on the basis of service only. The rise and growth of the Medical Service Bureau is evidence of this, and is the best means yet at hand to accomplish the purpose.

It may be, however, that some plan under the control of the medical profession will be evolved, whereby every individual will be treated to the best of our ability, and payment for these services be adjusted to the ability of the individual to pay. Such plans are being experimented with in other sections of the country, and may be medicine's answer to socialized medicine. It would reach all the population, whereas the best state medicine plan reaches less than 50 per cent. The Medical Service Bureau is again an ideal instrument for the purpose.

With the passage of the Social Security Bill in Congress a new and probably permanent medical relief set-up has been evolved. At the request of the State Department of Public Welfare, a plan is being worked out by the State Medical Service Bureau, into whose hands your trustees thought best to place the matter, which will be uniform for all the counties of the State. This was placed in the hands of the Service Bureau because that organization is able to handle it for all the doctors. Every member of each county society is eligible and the S. D. P. W. prefers to deal with a single organization rather than the individual physician. Since the money paid the doctors represents far more than that paid to all the other agencies, it seemed best that the medical profession should take the lead. As far as worked out, and it is practically complete, it has the sanction of the chairman of the S.D.P.W.

I trust that some day organized medicine may recover ground that has been lost to cults and lay health organizations. This will come about not only

by educating the public to the standing and value of orthodox medicine, but ourselves to take better care of the chronics, the psychiatrics and others who fall easy prey to the blishments of the cults.

This year, as you know, has been legislative year and your executives have had the task of defending organized medicine against the attacks of those who would profit by destruction of the basic science act with lowering of standards, the further encroachment of lay organizations and the threat of socialized medicine. This work was ably handled by the Public Health League, into whose hands the actual execution was placed. We are to be congratulated on the able manner in which this was done, and that nothing was accomplished by those without who would lower the standards of medical care, or those within who would pass laws for the commercial good of themselves. But the pity of it is that we must always be defending, when we should be away out front in an offensive trying to pass laws that we know will better protect the health of the individual and society.

We have been assured by those representing us at the legislature that, unless we get exceedingly busy in the next two years and demonstrate to the public that we have more to offer than the advertising, half-educated cultist, the overzealous lay organizations or the politicians with socialized medicine for half the people, we will not fare so well next time. In view of this it behooves us to support morally and financially, and by service plans already working out to educate ourselves and the public to the detrimental effect of socialized medicine upon health.

Think of this great corporation trying to do something on a measly \$3.00 per year. If you think your State Association has never done anything for you, perhaps that is the reason. You have never done much for yourself. Let's get the vision. There are enemies to be fought, fields rightfully ours to the captured, a goal of professional achievement to be gained that are well worth while to each of us. Is it worth, say, five cents a day? I'll say it is. But what a sordid way of putting it. Think of the professional and soul satisfaction, the real reward of every real physician.

In accepting this office last year I stated that I felt it was every person's duty to leave this world better off for his having lived in it and that each doctor should leave his profession better off for his having been a member of it. I trust we have advanced toward that goal the past year and I commend a like aspiration to you in the coming year.

ALLERGY. ITS RECOGNIZED CAUSES *

ALBERT H. ROWE, M.D.

OAKLAND, CALIF.

Allergy includes those symptoms and phenomena which vary from the normal and which result from the effect of a foreign substance on the body cells. Most students today agree that it includes idiosyncratic reactions to inhalants, foods, drugs, contact substances and bacteria, and is identical with anaphylaxis as we observe it in animals.

All people are prone to develop allergy. People vary only in the ease with which allergy arises. The tendency is exaggerated by inheritance. Heredity also tends toward the development of specific types of sensitization such as pollen animal emanation or food, and heredity also tends toward the localization of the manifestations of allergy in special tissues of the body.

Therefore, every physician must understand the cause and manifestations of allergy and must take histories on all patients so that evident or obscure allergic propensities can be recognized or suspected. The history of recurrent head or bronchial colds or congestion, of hay fever, asthma, hives, cutaneous or other swellings or edema, dermatitis, eczema, recurrent or chronic gastrointestinal symptoms of difficult explanation, excoriations of mucous membranes, recurrent vomiting or bilious attacks in childhood, migraine or toxemia in the family or personal history should be recorded as possible evidences of the allergic status.

Few tissues in the body are exempt from allergic reactions. The skin, the mucous membranes of the nasobronchial and gastrointestinal tracts, and less often of the urogenital tract, the conjunctivae, the smooth muscle throughout the body, including that of the cardiovascular system, the meninges and nerve sheaths, and the synovial membranes of joints and tendons may be involved in varying degrees. Several allergens of the same or of different types may be simultaneously active, especially in the skin and in the nasobronchial tissues.

Today we will consider the different types of allergy and certain specific allergens which produce sensitizations in man. The manifestations of allergy are fully described elsewhere.¹

INHALANT ALLERGY

It must be emphasized that pollinosis not only produces mild or severe nasal and bronchial symptoms and dermatitis, but at times gastrointestinal symptoms, severe states of toxemia, exaggerated

during the pollen seasons, and other less frequent difficulties in other parts of the body such as migraine or even cardiovascular symptoms. Pollen allergy should first be suggested by the history of symptoms occurring during pollen seasons. The diagnosis of the specific pollens causative of the patient's allergy must depend on a knowledge of the botanical flora in the patient's environment and the amounts of the pollen in the air. The fact that pollen blows for many miles (pollen from Alaska has been found in Seattle) increases the possibilities of pollen allergy. This information is very important, since about 20 per cent of all pollen-sensitive patients fail to give satisfactory skin reactions, making the choice of pollens for therapy dependent on knowledge of the pollens in the air when the patient's symptoms are active.

Testing with active pollens of a wide variety is of great diagnostic value. Scratch tests either with dry pollens or active extracts should first be done. Then intradermal testing with a 1-200 dilution with all important pollens to which scratch reactions were negative is important. Later testing with a stronger extract in the absence of reactions may be indicated. Intradermal testing should be done with a good tuberculin syringe and 27 gauge needles, and no more than .02 cc. should be injected into the skin. If skin tests are negative, pollen allergy can frequently be demonstrated by the dropping of a little dry pollen onto the conjunctiva of the lower lid. Congestion from a reaction can be terminated by washing the pollen out with 1-4000 adrenalin in boric acid solution. Nasal testing, moreover, can be performed by the inhalation of dry pollen or the spraying of a 1-10 extract into the nose. Rapid nasal congestion, sneezing and itching indicate mucous membrane sensitivity. Such nasal tests are also useful to determine clinically active pollens among those which have produced positive reactions, since all reactions to pollens do not prove clinical susceptibility.

During the last two years we have extracted all pollen and other inhalant allergens with a 5 per cent glucose solution, to which .5 per cent phenol has been added. We use a 2 per cent extract which yields good therapeutic results. It is apparently impossible to extract the allergen from more than 2 or 3 grams of pollen with 100 cc. of extract. These glucose extracts are stable, nonirritating, and easier to draw through the fine needles than are glycerine extracts. Moreover, the 1-50 dilution can be injected intradermally without producing necrosis as occurs with glycerine extracts.

* Read before the Forty-sixth Annual Meeting of Washington State Medical Association, Everett, Wash., Aug. 13-14, 1935.

It seems best to standardize pollen extracts by the weighed amount of pollen contained rather than by the total N or total protein N content. Such solutions can be designated by the dilutions or by Noon pollen units. Thus you can order .5 cc. of a 1-50 dilution or its equivalent of 10,000 Noon units.

All pollen therapy must be individualized. Treatment must begin with .025 or .05 cc. of a dilution which just fails to react by the scratch method. In patients with small skin reactions, treatment can be increased more rapidly than in those with large reactions. During the season treatment must progress slowly and often relief is obtained with minute doses. If any exaggeration of symptoms occurs, the dosage must be reduced. Preseasonally, or if the patient is in a pollen-free room and is comparatively symptom-free, the rapid or rush method of pollen therapy can be used. Doses may be given every two to four hours according to the local and general reactions which develop. Such therapy can be aided greatly by the use of the tourniquet and small doses of adrenalin according to Duke's suggestion.

Ultimate cure or comparative freedom from symptoms depends on prolonged therapy given continuously over a period of two or more years until skin reactions disappear and the patient remains free from symptoms throughout a season; or it depends on preseasonal therapy for two to seven or eight years. Poor results usually arise from insufficient total dosage or failure to include all pollens in the antigens to which the patient is clinically sensitive. Success often demands treatment with several grass pollens rather than one, or with pollens of all important trees, shrubs, weeds, to which even slight sensitization exists. Failure may arise from neglect of pollens from insected pollinated flowers, trees and shrubs, to which the patient is exposed in the house, garden or public places.

Animal emanation sensitizations are often responsible for a severe or a chronic persistent type of asthma or allergic eczema and at times for nasal allergy. Such sensitizations may produce perennial symptoms, worse in the winter and exaggerated by colds. Seasonal symptoms also may arise from such allergens, to which exposure may only occur at one time of the year. People are most commonly sensitive to those emanations with which prolonged and great contact occurs. Thus feathers in pillows probably cause most frequent allergy, and wool in carpets, bedding, clothing and furnishings, horse, goat, rabbit, camel and cattle hair, which are used in fabrics, furniture, carpets in varying degrees, are apt to produce inhalant allergy. Sensitivity is so great at

times that emanations from horses or animals in fields, pets in the house, or from friends' or relatives' clothing and in the dusts of houses, in which animals were present years before, may result in symptoms. Proximity to yards, barns or adjoining houses containing such animals needs consideration. Even the dust from adjoining roofs or fences frequented by cats, or dust carried into the house through radiators from basements, in which cats or dogs have been, may also cause trouble.

Control of such allergy depends on two procedures. First, environmental control which often necessitates the preparation of sleeping and living environments so that all dust and causative allergens are entirely removed. In some patients residence in such a room for one or two weeks may be necessary before allergens are liberated from the sensitized tissues. This necessity is demonstrated by the experience of a girl sensitive to guinea pig emanations. She had been free of asthma for two years; then she remained for five minutes in a laboratory in which a few guinea pigs were present, and immediate asthma occurred which was severe for twenty-four hours, and lasted for five days. This shows that brief intermittent inhalation of allergens may keep asthma going indefinitely.

Second, desensitization is important for control. Treatment antigens are best prepared by making a 2 per cent extract of a dry commercial allergen or from one prepared in one's own laboratory. Other dilutions of 1-500, 1-5000, 1-50,000 and higher if necessary may be made. Treatment should begin, as in pollen therapy, with .025 or .05 cc. of a dilution which just fails to react with the scratch test. If any exaggeration of symptoms occurs, the dose is too large and a weaker dilution must be used. A gradual increase of dosage according to the relief obtained, up to .3 to .8 cc. of the 2 per cent extract, is usually required for desensitization. Oftentimes it is wise to include six or eight different allergens in the antigen, in which case it may be necessary to increase the final dose to one or two cc. of the 1-50 dilution, if ultimate desensitization to all allergens contained in the antigen is desired.

Horse dander sensitization is especially active and resistant to therapy, and is productive of marked nasobronchial and cutaneous symptoms. It has been shown that a common antigen exists in the proteins of horse dander, serum and of meat. The eating of horse meat or inhalation of dander thus may sensitize to serum.

Serum therapy is especially dangerous in patients

sensitized to horse dander or serum, and in view of the fact that horse dander sensitization can exist without skin reactions, it becomes necessary to use care in serum therapy in every patient, especially in the presence of nasobronchial or cutaneous allergy. Before any serum injection, a scratch test with serum must be made, and if such is negative, an intradermal test with .02 cc. of a 1-100 dilution of serum, or an ophthalmic test with a 1-10 dilution of serum should be done. It has been shown that the ophthalmic test is more often indicative of clinical allergy to serum than is a slight intradermal test. If such tests are positive, serum therapy should be given in the same way that pollen therapy is administered, repeating doses every one-half to one hour if possible, proceeding more rapidly than with pollen therapy, if necessary with the help of adrenalin. According to the degree of sensitivity, it may require from four to forty-eight hours to give a protective dose of serum.

Intravenous therapy in a patient definitely sensitized to serum should not be undertaken. Those patients with marked allergy to dander and serum apparently present since infancy should rarely if ever receive any subcutaneous or intramuscular serum. Fortunately such patients are rare, death from serum having occurred approximately once in 70,000 injections according to Park. In the usual patient in whom testing with serum is negative, a preliminary subcutaneous injection of .05 or .1 cc. of a 1-10 dilution should be given and, if no definite local or general reaction occurs in twenty minutes, the entire dose can then be administered. Simon and others have demonstrated a common antigen in most mammalian sera, necessitating the careful use of immune bovine or sheep sera in a horse serum sensitized individual. Marked allergy to such sera is not especially frequent, but preliminary tests with them must be done for safety.

Silk allergy is not infrequent. Skin reactions to silk are apt to be very large, and nonspecific reactions may occur. Silk often produces dermatitis and eczema, though asthma and nasal allergy may occur as in one girl who developed asthma when she was in a room or an auto where people were who wore silk dresses or underwear. One child reported by Clarke had asthma when attended by a nurse who wore silk stockings and underclothes. Sulzberger and Vaughan produced passive sensitization of a normal skin with antibodies in the serum of a patient sensitive to silk. When this normal individual sniffed the dry silk allergen, in eighteen minutes

itching at the injected site appeared, redness and a wheal in twenty minutes, and for two hours marked thickness of the skin at the injected site persisted, showing the allergen was absorbed from the nose into the blood and carried to the sensitized cells in the skin. This is what is occurring continuously in the skins of the sensitized individuals who are breathing inhalant allergens, to which their skins are sensitized. Desensitization with silk allergens must be carefully done over a long period.

Cottonseed allergy is especially active. Remnants of the seeds often occur in cotton of poor quality. This necessitates the removal of quilts, upholstery, furniture, mattresses or pillows which might contain such cotton. However, cotton fabrics or thread of the purest quality may contain enough allergen to produce severe symptoms in certain people. Many cottonseed-sensitive patients cannot ingest oil or shortening made therefrom.

Kapok allergy is more frequent than was formerly assumed. Grove and Coca reported that kapok contained an antigen also present in cottonseed, indicating that cottonseed sensitization was always accompanied by kapok sensitization. Clinically this is not always so, since Fineburg and the speaker have seen patients sensitive only to kapok, and not to cottonseed. One patient had generalized eczema for several years, always worse at night. There was a one-plus intradermal reaction to kapok. Removal of the kapok mattress gave spectacular relief. Another girl with hay fever and vernal catarrh was sensitive to pollens and animal emanations. No reaction to kapok occurred, but only with its entire elimination from her environment and treatment with a kapok antigen did she have relief.

Orris root allergy is very important. Its frequency often necessitates special powders and cosmetics free from this substance. Along with this allergy, other ingredients in cosmetics and perfumes, including specific perfumes and rice powder, may cause allergy. Black records an interesting case of acquired allergy in a hairdresser who first developed asthma from orris root used for a dry shampoo. In eight months asthma again developed to buckwheat flour which she had used as a substitute for orris, and in another eight months it again developed from the use of rye flour. Desensitization with orris root extracts is very successful.

Flaxseed causes ingestant allergy when taken in breakfast food. Inhalant allergy may arise from the vapor of poultices, and more often from the dusts of poultry feeds which contain flaxseed. Sen-

sitization to other grain and feed dusts in poultry and cattlemen, and in tenders of birds and other animals are apt to arise. Alfalfa allergy is not uncommon. These allergies necessitate testing with specially prepared extracts. Specific desensitization yields good relief.

Sensitization to cattle hair in dairy men, to sheep wool, to deer hair in hunters, to parrot, canary feathers, rabbit hair and various other emanations of caged animals and birds occur and respond to proper therapy.

House dust sensitization has been recognized for many years. It was especially noted in 1922 by Cooke and Kern. Allergics frequently react to dust extracts with no clinical manifestations. However, nasal or bronchial, and at times cutaneous symptoms arise from dust allergy, often indicated by the patient's actual history of nasobronchial symptoms when exposed to dust. House dust sensitization at times arises from animal emanation, cosmetic, pollen and other specific allergens from furniture or woodwork which collect in such dust. At times samples of dust from special pieces of furniture, carpets, draperies, etc., yield positive reactions, indicating the source of such specific environmental sensitization. Cooke has maintained that most house dust reactions are not due to such specific substances but to an unknown allergen. Recently Cohen has reported experiments which indicate that mere aging of a substance may increase its skin reacting ability in dust-sensitive patients. He autoclaved fresh cotton linters in jars. Extracts of this material gave no skin reactions, but as months passed by extract of the linters gave increasingly positive reactions in dust-sensitive patients. Thus aging may explain many house, mattress, furniture and carpet dust reactions. Desensitization with dust extracts are frequently of great benefit.

Fungi of many varieties are everywhere about us, and are found in all dust, carpets, bedding, mattresses and other furnishings. They are especially active in moist regions or climates. The spores are about 1/12 the size of average pollen grains and they are found in the air even in high levels. Nasobronchial and cutaneous symptoms not infrequently are due to these spores. Tests with a few common fungi should be routine. In addition, plates of Sabouraud's medium should be exposed to the air of suspected environments, colonies grown, subcultured in maltose, agar broth, and extracts made of the

ground up pelts for testing and desensitization if necessary. Fungi in house dust as causes of allergic reactivity may occasionally occur.

Time will not allow a further discussion of many other inhalant allergens. Suffice it to say any organic and even inorganic substance, to which an individual is exposed for any length of time in any environment or occupation, such as lumber, wood, drug, feed, nursery or other business, may lead to acquired nasobronchial or cutaneous allergy.

(To be concluded)

PROSTATIC HYPERTROPHY

TREATED BY ACID NITRATE OF SILVER SOLUTION

M. E. REITZEL, M.D.

McMINNVILLE, ORE.

Several years ago, in a case that had received several injections of silver nitrate (10 per cent sol.) for relief of cystitis associated with prostatic hypertrophy, there was a noticeable improvement in bladder drainage. The injections were given through a soft catheter which was probably stopped by a median bar or lobe, so that the prostatic cavity received the full effect of the solution.

Acting on this "hunch" silver nitrate solution in cautiously increased strengths was tried in other prostatic cases. The best results were obtained with 20 per cent silver nitrate, plus 1 to 4 per cent nitric acid, the acid addition depending upon the degree of alkalinity of the urine.

Method of application thus far developed is as follows. The urethra is anesthetized with butyn or metycaine (2 per cent sol.) and the bladder drained through a catheter lubricated with a water soluble jelly. (Petrolatum would prevent the action of the silver solution which follows.) A urethroscope is then inserted and the prostatic urethra mopped dry as possible with a cotton wrapped probe.

A tubular metal instrument, slightly curved and fitted with an obturator, is then passed into the prostatic urethra and the obturator withdrawn. From 20 to 25 drops of the acid silver solution is run into the tube, the obturator reinserted and pushed home. From three to five such treatments are given at from three- to five-day intervals.

The treatment has been used in 103 cases to date (two of these being now under treatment). Most of the cases have been followed up and reports are extremely gratifying.

MUMPS MENINGITIS AND MENINGOENCEPHALITIS

REPORT OF SIX CASES*

L. HOWARD SMITH, M.D.

PORTLAND, ORE.

The object of this report is not to record any new complication of mumps, but to point out a rather high incidence of central nervous system involvement occurring in a recent mumps epidemic in and about Portland.

Although involvement of the central nervous system is still regarded as a rare condition, it has been recognized for a considerable length of time. As far back as 1758 Hamilton¹ recorded a case of death in a man twenty-two years of age with what was evidently a meningitis with maniacal symptoms during mumps. Ruhrah² gives us the title of Hamilton's article, "An Account of Distemper, by the Common People in England, Vulgarly Called Mumps."

Since then the cerebral complications in mumps have been the subject of many excellent articles, notable by Acker³ who collected 150 cases from the literature up to 1913, Feiling,⁴ "Mumps: A Critical Review," in 1915, and Casparis⁵ in 1919. Some forty-two case reports of cerebral manifestations in mumps have appeared in the last ten years. One of the latest is that of Montgomery,⁶ "Mumps Meningoencephalitis," in which he reports seven cases.

The history, symptoms and clinical findings in these cases are essentially the same. Coincident with the onset of the parotid swelling or from one to seven days after, there are headache, vomiting, often delirium and fever, rigidity of the neck, positive Kernig sign and increased reflexes. The cerebrospinal fluid is under increased pressure, clear, and shows a cell count from 100 to 1000 with lymphocytes predominating. As pointed out by Montgomery, this lymphocytosis of the spinal fluid is usual but not always present. Complete recovery is the rule within a few days.

This more common type of central nervous system involvement is usually designated mumps meningitis. Five of our cases were of this type. In an-

other group the cerebral complication takes the form of encephalitis. One of our cases was of this type. Two cases of myelitis following mumps have been reported and several where neuritis was the main neurologic complication. Consequently we have many different names designating involvement of the nervous system occurring in mumps: meningitis, encephalitis, meningoencephalitis, myeloencephalitis and neuritis (table 1).

Case 1. Palumbis, Takys, boy, aged six years. November 12, 1934, irritable, fever 102° F. and swelling over both parotid glands. Dr. Bridgeman saw the child and diagnosed the condition as mumps. Nov. 17 he was very irritable, fever and headache. He complained of some pain in his knees and the muscles in his legs. Admitted to the Doernbecher Hospital the same day with fever 103.4°, stiffness of neck, reflexes very active, Kernig positive and Brudzinski positive. No weakness of muscles. White blood count 5,000, poly. neut. 30 per cent and small lymphocytes 62 per cent. Lumbar puncture gave a clear fluid with 119 cells per c.m. Globulin negative and total protein 11.5. Two days later he was greatly improved. Neurologic signs normal, no stiffness of neck and no complaints. November 20, on the fourth day after admission, he was discharged from the hospital. Recovery complete.

Case 2. J. E., boy, aged ten years. March 22, 1935, developed mumps, left side. Two days later right side involved. Six days after onset of mumps, March 28, severe frontal headache and vomiting with pain in epigastrium. Continued to vomit for the next five days. Headache almost constant. Admitted to the Doernbecher Hospital April 1, with fever 100.4°, vomiting and headache. There was slight stiffness of the neck, positive Kernig and Brudzinski. Reflexes present, active and equal. White blood count 5,050, with poly. neut. 36 per cent and small lymphocytes 60 per cent. Lumbar puncture showed a slightly cloudy fluid under increased pressure with 555 cells per c.m., poly. 32 per cent and lymph. 68 per cent. Globulin negative and total protein 25.0. Two days later, April 3, lumbar puncture showed a fluid with no increase in pressure, 142 cells, poly. 15 per cent, lymph. 85 per cent and globulin present. On April 8, eight days after admission, he was discharged from the hospital. Recovery complete.

Case 3. T. L., boy, aged four years. April 27, 1935, swelling of right parotid gland. On April 30, fever, headache and vomiting which was frequent. At 9:00 p.m. began to twitch his fingers, talked irrationally and turned his eyes upward. This lasted for about ten minutes. Admitted to the Doernbecher Hospital May 1, with fever 102.2°, headache, rigidity of neck and positive Kernig and Brudzinski. Lumbar puncture showed a clear fluid, 450 cells per c.m., poly. 12 per cent and lymph. 88 per cent, globulin present and total protein 28.5. On May 6, five days after admission, he was discharged from the hospital. Recovery complete.

Case 4. C. B. J., girl, aged ten years. March 21, 1935, severe case of mumps. Was delirious several times with shaking and screaming. At these times the pupils would dilate. Did not seem like herself and was sleepy and listless. These latter symptoms continued until April 27, when she complained of seeing spots in front of eyes and then began to stagger, usually to the left. Slept a great deal and would awake startled from a quiet sleep, scream and struggle. No pain and no apparent fever. Eyes became worse, things were blurred, no diplopia. At times arms and legs jerk. On May 1, staggered and fell directly forward and again directly backward. Did not hurt herself or lose consciousness.

*From the Department of Pediatrics, University of Oregon Medical School.

*Read before a joint meeting of Academy of Pediatrics, Region IV, and North Pacific Pediatric Society, Seattle, Wash., August 9, 1935.

1. Hamilton, R.: *Tr. Roy. Soc. Edinburgh*, p. 59, 2, Pt. 2, 1790.

2. Ruhrah, J.: *Abt's Pediatrics*, 6:287, W. B. Saunders Co., Philadelphia, 1925.

3. Acker, G. N.: *Parotitis Complicated with Meningitis. Am. J. Dis. Child.*, 6:399-407, Dec., 1913.

4. Feiling, A.: *Mumps: A Critical Review. Quart. J. Med.*, 8:255-271, April, 1915.

5. Casparis, H. R.: *Cerebral Complications in Mumps. Am. J. Dis. Child.*, 18:187-193, Sept., 1919.

6. Montgomery, J. C.: *Mumps Meningoencephalitis. Am. J. Dis. Child.*, 48:1279-1283, Dec., 1934.

Case	Date Hospital Admission	Age Years	Sex	ONSET IN RELATION TO SWELLING OF SALIVARY GLANDS		Involvement of Salivary Glands	SYMPTOMS					SIGNS		
				Days After Onset	Coincident With Onset		Fever	Head-ache	Vom-iting	De-lirium	Con-vulsions	Ridity of Neck	Kernig's	Reflexes
1	11/17/34	6	M	5	—	Both parotids	+	+	0	0	0	+	+	+++
2	4/ 1/35	10	M	6	—	Both parotids Submaxillary	+	+	++	0	0	+	+	+
3	5/ 1/35	4	M	3	—	Right parotid	+	+	++	+	0	+	+	+
4	5/ 2/35	10	F	—	+	Both parotids	+	0	0	+	0	0	0	+++
5	5/20/35	3	M	7	—	Both parotids	+	+	+	+	0	+	+	+
6	5/21/35	5	M	1	—	Both parotids	+	+	+	+	0	+	+	+

Case	OBSERVATIONS ON SPINAL FLUID								BLOOD	RESULTS
	Date	Char-acter	Pres-sure	Glob-ulin	Total Protein	CELLS				
						Total Number	Polymor-phonuc-lears Percent	Lympho-cytes Percent		
1	11/17/34	Clear	—	—	11.5	119	—	—	5,000	Complete Recovery
2	4/ 1/35	Cloudy	+	—	25.0	555	32	68	5,050	Complete Recovery
	4/ 3/35	Cloudy	—	—	—	142	15	85	—	
3	5/ 1/35	Clear	—	+	28.5	450	12	88	6,000	Complete Recovery
	5/ 3/35	Clear	—	—	25.0	308	61	32	—	
4	5/ 2/35	Clear	++	—	33.0	4	—	—	6,600	6/26/35 Appendectomy 8/ 9/35 Improved. Some spasticity of legs.
	5/ 5/35	Clear	++	—	33.0	5	—	—	—	
	5/10/35	Clear	++	—	—	6	—	—	—	
	5/17/35	Clear	++	—	21.0	7	—	—	—	
5	5/20/35	Clear	—	—	43.0	478	—	—	6,600	Complete Recovery
6	5/23/35	Clear	+	—	27.7	278	56	44	5,350	Complete Recovery

Table 1. Mumps Meningitis and Meningoencephalitis

Admitted to the Doernbecher Hospital May 2, (forty-one days after onset of mumps) with fever, drowsy; sleeps when left alone, obeys commands, answers questions though slowly, expressionless, stares unseeingly. Pupils dilated, react little or not at all to light. Slight facial weakness on left side. Weakness of left arm and grip. Marked rigidity of left leg. Reflexes of arms and legs hyperactive. Occasional clonus. Chronic hypertension left big toe. Babinski positive. Abdominal reflexes absent. Lumbar puncture showed a clear fluid under increased pressure with only four cells per c.m. Globulin negative and total protein 33.0.

Subsequent lumbar punctures on May 5, 10 and 17 showed 5, 6 and 7 cells. For two weeks she continued in a comatose condition with high temperature from 104° to 106.8°. It was the opinion of the staff that she would unquestionably die. On May 19, there was a sudden drop of temperature to normal and she seemed more alert. She responded to questions slowly. Both arms and legs remained spastic. Bilateral Babinski was present. Feet were held in equinus position. Patellar, biceps and triceps reflexes hyperactive. Abdominal reflex was absent and there was gradual improvement until June 26, when she suddenly developed pain in the right side of the abdomen. Slight temperature

and leucocytosis. Appendectomy performed. Uneventful recovery. Discharged from the hospital July 7, mentally clear with coarse tremor of right hand and still some spasticity of right arm and legs.

Case 5. T. S., boy, aged 3½ years. Two brothers have had mumps, one with post mumps meningitis (case 3). On May 13, 1935, developed mumps. Six days later had headache and vomited. Irritable. Admitted to the Doernbecher Hospital May 20, 1935. Temperature 102°, later 104°. Rigidity of neck, positive Kernig and reflexes active. Lumbar puncture showed a clear fluid, 478 cells, globulin negative and protein 43.0. Discharged May 23. Complete recovery.

Case 6. A. R., boy, aged five years. On May 18, 1935, left parotid swollen. May 19, both parotid glands swollen. Vomited seven times during the day and night, headache. May 20, talked irrationally and at times did not know his mother. Admitted to the Doernbecher Hospital on May 21. Temperature 105°, slight stiffness of neck, Kernig positive, Brudzinski positive. Lumbar puncture showed a clear spinal fluid, under normal pressure, 278 cells, poly. 56 per cent and lymph. 38 per cent, globulin negative and total protein 27.7. Discharged from the hospital May 24. Complete

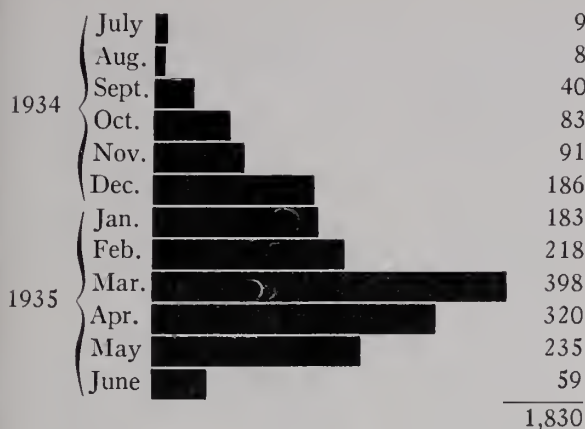


Table 2. Cases of mumps reported to Bureau of Health, Portland, Ore.

During the past year Portland and vicinity have had a rather extensive epidemic of mumps. Our Health Bureau has had 1830 cases reported from July 1, 1934, to July 1, 1935 (table 2). A conservative estimate of the actual number of cases occurring in the city would be about 2500. Beside the six cases with nervous system involvement, herein reported, who were under hospital care, we have seen and have had reported to us by colleagues nine other cases which clinically must be considered as mumps meningoencephalitis. The first of this group of cases occurred last summer, when everyone was poliomyelitis-minded, due to the epidemic in California and were diagnosed as such because of stiff neck, vomiting, headache and fever, but without paralysis. The swelling of the parotid glands, although present, was not given its proper significance because of the worry about infantile paralysis. Dr. W. F. Patrick and Dr. M. L. Bridgeman should be given credit for bringing up the question of doubt about these cases being true poliomyelitis and so subsequent cases were more carefully checked as to the presence of mumps.

CLINICAL CASES WITH EVIDENCE OF MUMPS MENINGOENCEPHALITIS

1. June, 1934, Man, with mumps with arm involvement. Question of poliomyelitis.
2. June, 8, 1934. Boy, with mumps. Few days later, fever, stiff neck and vomiting. Question of poliomyelitis. Given transfusion. Complete recovery.
3. July, 1934. Boy, with mumps, developed headache, vomiting, stiff neck. Lumbar puncture, 140 cells. Question of poliomyelitis. Complete recovery.
4. July 7, 1934. Boy, playmate of case 3. Developed fever, headache, vomiting, slight stiff neck. W.b.c. 8,000. No mumps noted. Question of poliomyelitis because of contact with case 3. Complete recovery.
5. Sept. 20, 1934. Boy, with mumps, headache, vomiting and stiff neck. Complete recovery.
6. Dec. 1934. Man, with mumps, fever and headache. Diagnosis of mumps encephalitis made. Complete recovery.
7. April, 1935. Girl, with mumps, vomiting, headache and stiff neck. Complete recovery.

8. May, 1935. Boy, with mumps. Loss of hearing right ear.
9. May 24, 1935. Boy, with mumps, fever, headache and convulsions. Complete recovery.

As far as can be determined, this is the first time that nervous system complications have been recorded with mumps in Portland. Although it would be possible for slight nervous manifestations accompanying mumps to be overlooked, I do not believe such marked symptoms and signs would go unnoticed, had they occurred in other epidemics.

This variability in frequency of meningoencephalitis in different epidemics of mumps has been noted by others. Most of the earlier reports came from France. In 1919, Haden⁷ reported nine cases of cerebral complications occurring among 476 cases of mumps. Wallgren⁸ states that mumps meningitis is not a rare occurrence in Scandinavia. Morris and Morris⁹ reported two cases with symptoms of nervous involvement in 2000 cases of mumps. Radin,¹⁰ studying 5,765 cases of mumps, does not even mention meningitis or encephalitis as a complication. Larkin¹¹ observed two cases among 2,400 cases of mumps. DeMassary, Tockmann and Luce¹² observed 16 cases of nervous complication among 635 cases of mumps (table 3).

Year	Author	Cases of Mumps	Cases with N.S. Complications
1904	Dopter ³⁵	1,705	9
1917	DeMassary, Tockmann and Luce ¹²	635	16
1918	Brooks ³⁶	1,059	0
1919	Haden ⁷	476	9
1919	Radin ¹⁰	5,765	0
1919	Larkin ¹¹	2,400	2
1930	Morris and Morris ⁹	2,000	2
1935	Author (estimated)	2,500	15

Table 3. Nervous system complications of mumps in various epidemics.

Another striking feature of mumps meningoencephalitis is the preponderance of males affected. In our own series, 13 males and 2 females. In collecting 44 cases from the literature, 81.8 per cent were male and 18.2 per cent female. This fact has not been noted in any of the literature reviewed (table 4).

The examination of the spinal fluid of individuals with mumps, but *without* symptoms of meningeal involvement, has showed different results with vari-

7. Haden, R. L.: The Cerebral Complications of Mumps. Arch. Int. Med., 23:737-744, June, 1919.

8. Wallgren, A.: Mumps Meningitis without Parotitis. Acta Paediat., 6:53, 1926. Abst. Am. J. Dis. Child., 33: 324, Feb., 1927.

9. Morris, L. M. and Morris, M.: Acute Nonsuppurative Encephalitis Complicating Certain Infectious Diseases of Doubtful Etiology. Arch. Pediat., 47:135-151, March, 1930.

10. Haden, R. L.: The Cerebral Complications of Mumps. Arch. Int. Med., 23:737-744, June, 1919.

11. Larkin, W. R.: Mumps Meningitis; Report of Two Cases with Autopsy Findings. Mil. Surgeon, 44:92-96, 1919.

12. De Massary, E., Hockman and Luce: La Meningite ourlienne: Sa constance, son evolution, sa duree. Bull. de l'Acad. de Med., 78:6, 1917. Quoted by Morris and Morris, vide supra.

ous observers. Monod¹³ found increased cell count in the spinal fluid of six of eight children with mumps. Nobécourt and Brélet¹⁴ failed to confirm this finding. DeMassary, Tockmann and Luce found an increase of cells in forty specimens of spinal fluid from patients with mumps without symptoms of meningitis, while Haden got negative results from lumbar punctures on a few patients with mumps who had vomited and complained of headache, but showed no other sign of meningitis.

In 1932, Philibert,¹⁵ a French observer, advanced the theory that the virus of mumps is an infection primarily of the central nervous system, comparable to that of rabies, but it is not particularly virulent, so that its action is usually transitory. The virus is eliminated by the salivary glands and may, therefore, set up a reaction in them. It is also eliminated by the pancreas and has a secondary effect on the testicles and kidneys. He believes that the original infection is caused by a virus that affects the nervous system and that the parotitis, pancreatitis and testicular involvement are only secondary manifestations.

Montgomery holds that the infection is probably primarily a septicemia. He states, "the conception of meningoencephalitis as a complication of mumps is probably erroneous. The infection is apparently due to a virus which has a predilection for the salivary glands, the meninges, the encephalon, the pancreas and the mature gonads. This predilection is apparently strongest for the salivary glands, and they are usually involved, even when there is infection elsewhere." Wallgren and Paddock have each reported cases with meningitis without involvement of the salivary glands.

Mumps is only one of the infectious diseases to have cerebral symptoms as an added clinical manifestation. Recently many authorities, Hempelmann,¹⁶ Flexner,¹⁷ Reimold and Schärdrich,¹⁸ and Erwin and Wurman¹⁹ have commented on this increase in the frequency of encephalitis complicating acute infections, mumps, varicella, variola, vaccinia,

Year	Author	Sex Not		Results
		Male	Female Given	
1926	Wallgren ⁸	2		Recovery
1927	McClelland ²⁰	1		Recovery
1927	Schoenthal ²¹	1		Recovery
1928	Fabian ²²		3	Recovery
1928	Wahl ²³		1	Recovery
1928	Collens and Kabinowitz ²⁴	1		Recovery
1928	Taillens ²⁵	1		Recovery
1930	Synge ²⁶	1		Recovery
1930	Johannsen ²⁷	2	4	Recovery
1930	Cartagenova ²⁸		1	Recovery
1930	Morris and Morris ⁹	2		Recovery
1931	Butler ²⁹	1		Recovery
1931	Hempelmann ¹⁶		2	Recovery
1932	Paddock ³⁰	2		Recovery
1932	Boulanger ³¹	2		Recovery
1934	Kousmine ³²		1	Recovery
1934	Montgomery ⁶	6	1	Recovery
1935	Wegelin ³³	1		Recovery
1935	Johansen ³⁴		6	Recovery
1935	Author			
	(Hospital Cases)	5	1	Recovery
	(Clinical Cases)	8	1	Recovery
	Total	36	8	13—57

Male 81.8 per cent; Female 18.2 per cent.

Table 4. Cases of mumps meningoencephalitis reported during the last ten years.

measles, pertussis, scarlet fever and antirabic vaccination. All are agreed that, although the clinical and pathologic pictures in each are very similar and may be related, yet they are all quite distinct from epidemic encephalitis. Of these, postvaccinal encephalitis has received the most attention. Flexner comments: "The decade through which we are passing has shown an increase in the number and variety of myelitic and encephalitic disorders. The etiology of the disease, postvaccinal encephalitis, is left unsolved." Brennermann, in 1931, commenting

20. McClelland, J. E.: Mumps Meningitis. *Am. J. Dis. Child.*, 34:131, July, 1927.

21. Schoenthal, L.: Ueber Meningitis bei Parotitis epidemica. *Monatschr. f. Kinderh.*, 36: 306-314, 1927.

22. Fabian, L.: Meningitis Parotidea. *Monatschr. f. Kinderh.*, 38:210, Jan.-Feb., 1928. *Abst. Am. J. Dis. Child.*, 36:149, July, 1928.

23. Wahl, S. A.: Meningitis after Mumps. *Am. J. Dis. Child.*, 36:177, July, 1928.

24. Collens, W. S. and Rabinowitz, M. A.: Mumps Polyneuritis; Quadriplegia with Bilateral Facial Paralysis. *Arch. Int. Med.*, 41:61-65, Jan., 1928.

25. Taillens, J.: Meningitis in Mumps. *Rev. méd. de la suisse Rom.*, 48:420-425, April 25, 1928. *Abst. Brit. M. J.*, *Epitome*, 2:1, July 7, 1928.

26. Synge, V. M.: Mumps Meningitis. *Irish J. M. Sc.*, p. 290, July, 1930. Quoted by Paddock, vide infra.

27. Johannsen, N.: Gutartige Meningitis als Komplikation von Mumps. *München Med. Wehnschr.*, 77:1403-1405, Aug. 15, 1930.

28. Cartagenova, L.: Meningoencephalitis Complicating Parotitis. *Prat. pediat.*, 8:211, June, 1930. *Abst. Am. J. Dis. Child.*, 42:153, July, 1931.

29. Butler, C.: Mumps Associated with Meningitis. *Am. J. Dis. Child.*, 42:1271, Nov., 1931.

30. Paddock, B. W.: Mumps Associated with Meningitis in Identical Twins. *Am. J. Dis. Child.*, 44:565-568, Sept., 1932.

31. Boulanger-Pilet, G.: Two Cases of Meningitis at Onset of Mumps. *Bull. Soc. de pediat. de Paris*, 30: 262, April, 1932. *Abst. Am. J. Dis. Child.*, 46: 1416, Dec., 1933.

32. Kousmine, C.: Zwei Fälle von Myelitis nach Mumps und Masern. *Schweiz. med. Wehnschr.*, 64:235-237, March 10, 1934.

33. Wegelin, C.: Meningo-Encephalitis in Mumps. *Schweiz. med. Wehnschr.*, 65:249-252, March 16, 1935. *Abst. J. A. M. A.*, 104:1777, May 11, 1935.

34. Johansen, G. F.: Serous Meningitis in Epidemic Parotitis. *Ugeskrift for Laeger*, 97:137-141, Jan. 31, 1935. *Abst. J. A. M. A.*, 104:1376, Apr. 13, 1935.

13. Monod, R.: Réactions méningées chez l'enfant. Thèse de Paris, 1902. Quoted by Montgomery, vide supra.

14. Nobécourt, P. and Brélet, M.: Méningite ourlienne avec lympholytose, céphalorachidienne. *Bull. Soc. de pediat. de Paris*, 7:282-287, 1905. Quoted by Montgomery, vide supra.

15. Philibert, A.: A New Conception of the Pathology of Parotitis. *Progrès méd.*, p. 145, Jan. 23, 1932. *Abst. Am. J. Dis. Child.*, 44:609, Sept., 1932.

16. Hempelmann, T. C.: Postinfections, Encephalitis and Myelitis in Children. *Am. J. Dis. Child.*, 42:721, Sept., 1931.

17. Flexner, S.: Postvaccinal Encephalitis and Allied Conditions. *J. A. M. A.*, 94:305-311, Feb. 1, 1930.

18. Reimold, W. and Schärdrich, E.: Encephalitis in the Course of Infectious Diseases in Childhood. *Jahrb. f. Kinderh.*, 123:229, April, 1929. *Abst. Am. J. Dis. Child.*, 40:428, Aug., 1930.

19. Erwin, P. and Wurman, S.: Ueber infektiöse Encephaliden im Kindesalter. *Monatschr. f. Kinderh.*, 55: 365-376, 1933.

on Hempelmann's article, "Postinfectious Encephalitis and Myelitis in Children," said, "until three years ago, I had never seen encephalitis in measles, mumps, whooping cough or chicken pox."

My only excuse for the presentation of this subject which has a very complete and exhaustive literature is to call attention to the invasion of mumps meningoencephalitis to this heretofore virgin region.

SUMMARY

Five cases of mumps meningitis and one of mumps meningoencephalitis are reported.

Nine additional cases of mumps are cited with clinical evidence of involvement of the nervous system.

In all, fifteen cases occurring in a period of one year in and about Portland. A rather high incidence of neurologic complication of mumps. A finding rather unique in this locality.

The preponderance of males affected is also noted.

734 Medical Arts Building.

DERMATOCONJUNCTIVITIS PROBABLY DUE TO EYELASH OR HAIR DYE

REPORT OF CASE*

CLARENCE A. VEASEY, SR., M.D.

SPOKANE, WASH.

In July, 1933, Bab¹ presented a paper in which he referred to a number of cosmetics and dyes used on eyelashes, eyebrows and skin which are known to produce dermatitis and even conjunctivitis. In six of the cases reported by him henna, which is used for dyeing the hair and also frequently used for dyeing the eyebrows and eyelashes, was the causative agent. The same month Greenbaum² reported a case of dermatitis due to Lash-Lure. This is a dye employed for dyeing beard, eyelashes and hair. Subsequent to that report other cases were reported by Harner,³ Bourbon,⁴ Jamieson,⁵ McCally, Farmer and Loomis,⁶ Forbes and Blake,⁷ and Moran.⁸

All of these cases presented symptoms that were

similar in each, though in some much more severe than in others. The eyelashes had been dyed from one to twelve days previously. The symptoms common to all were those of a severe conjunctivitis with photophobia, lacrimation, enormous swelling of both lids, in some of the cases it being difficult to open them in order to see the eyeball, both the ocular and palpebral conjunctivae being exceedingly red and there being a profuse stringy discharge in the eyes. In addition there was a marked dermatitis of the skin and eyelids and the portion of the face adjacent. In certain of the cases the corneae were infiltrated, and in one there was corneal ulceration. In most of the cases there was prolonged convalescence and in several there were recurrences over a period of some months. The case reported by Forbes and Blake ended in death.

Some of the authors reporting the above cases felt that allergy had considerable to do with the production of the symptoms, one patient having had two distinct severe reactions four years apart and also developed a localized dermatitis when using the dye on other patrons of the beauty parlor in which she was employed. Other authors felt that the condition was one produced by a chemical irritant.

The following case is now under my care:

Mrs. A. B., aged 47, who has been a patient of the writer's for many years, presented herself on October 1, 1934, with what appeared to be severe dermatitis of both eyes, worse in the left, of three days duration. The eyelids were enormously swollen, the palpebral fissure of both eyes being almost entirely closed. The lids were edematous, and when separated there was found to be a thick, ropy secretion and watery discharge. The skin of both lids and that of the face adjacent to the lids had a marked dermatitis, the skin presenting a brawny appearance not unlike that seen in the beginning of erysipelas. Subsequently the skin of the lids became moist as if due to the oozing of serum. There was marked photophobia and lacrimation, the ocular and palpebral conjunctivae of both eyes being enormously injected, but both corneae have so far remained clear. The smears showed no microorganisms. The Wassermann was negative.

The patient denied that she had used any dye to her eyelashes, but stated that her hair had been dyed a short time before.

Under the employment of cold compresses and warm saline irrigations the condition improved for a few days, the ropy secretion becoming markedly less and the skin presenting a more normal appearance. In twelve days time there was another marked flare-up of extreme redness and brawniness of the lids over night, with a reappearance of the thick, ropy discharge. At the present time we are employing cleansing irrigations and zinc oxide to the lids, and the patient is again improving.

Patient entirely recovered after three weeks further treatment.

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* Notes read at a meeting of Spokane Academy of Ophthalmology and Otolaryngology, Oct. 23, 1934.

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HYPOTENSION

GROWING APPRECIATION OF ITS IMPORTANCE

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(Concluded)

So much for hypotension as a factor in the etiology and pathogenesis of thrombosis. Now for the other subtopic. We are all only too familiar with the unfortunate individual who presents a variety of phenomena which frequently lead to his being diagnosed neurasthenic. These patients are apt to be of the ptotic habitus and it is horrible to think how much this group of individuals has suffered at the hands of the medical profession in the past through surgical and orthopedic attempts to overcome the disease of one or another organ.

These are the individuals in whom the operation of nephropexy was so commonly done a generation ago. Undoubtedly the kidneys were low and undoubtedly some of the individuals needed their kidneys sewn up into place in order to avoid kinking of the ureter with Dietl's crisis or obstructive hydronephrosis. But many of them had the operation in the belief that their general poor health would be relieved by restoring to its normal position one or both kidneys. Unfortunately, the results were seldom good for the procedure had merely remedied one feature of the many present. Then there were many who underwent operations directed to hitching up higher some portion of the gastrointestinal tract, sometimes the stomach, sometimes the colon. Belts for visceroptosis were worn, exercises, all without very satisfactory or permanent improvement. Today we feel that, unless obstruction occurs, these various ptoses are merely parts of a general picture and that little can be hoped from treating them alone.

Other features of these patients have been emphasized and treated with little success in other epochs. It would be just as faulty to pick on the low pressure which the majority of these individuals exhibit and to pretend that this was the fundamental feature of their trouble. And I would hate to fall into the same sort of error with regard to their hypotension that the profession fell into with regard to the ptosis and to the disturbances of the sympathetic nervous system. Nevertheless, the low blood pressure is an important element in these individuals and it becomes more so in some of them, when the pressure falls to such levels as to result in cerebral anemia with vertigo and syncope.

We do not know the cause of the low pressure

in these individuals nor do we know the cause of the low pressure which occurs in the majority of cases of peptic ulcer, and yet we know the type of individual who presents these different pictures and we know the low blood pressure is a part of their make-up. We do not believe that peptic ulcer results from hypotension nor that low blood pressure causes peptic ulcer, but we do know that there are individuals born with a physical habitus and a tendency to these disorders.

It would be easier for us to understand low blood pressure, if we knew more certainly the factors which maintain normal blood pressure. It was easy so long as we accepted the view that the adrenals secreted from their medulla a steady flow of epinephrine which maintained normal blood pressure, and that an increase of this secretion raised blood pressure and a diminution lowered it. This was a very satisfactory hypothesis and was made use of to fit in with the theory that the adrenals responded to emotion or in preparation of fight or flight and by an increased excretion of epinephrine and a corresponding rise in blood pressure. Now this latter is still accepted. It seems unquestioned that the adrenals do raise the blood pressure under such emergency needs.

But there is a growing doubt as to whether it is a function of the medulla of the adrenal to maintain normal blood pressure. There are experiments which seem to indicate that the adrenal medulla can be put out of commission without any fall in systemic blood pressure. So that, however tempting this explanation of hypotension may be, it is apparently not necessarily acceptable. It is apparently not the medulla of the adrenals which is necessary for life but the cortex. Animals may live indefinitely, apparently healthy with no medullary tissue, but death soon follows removal of all cortical tissue.

In true Addison's disease we are apt to think of low blood pressure as an important symptom. Actually it is by no means constant and the lowering is not always great during the stages of the disease prior to the final collapse. Pressure may be low, but often it is not below 100. In the final collapse it falls to shock levels and may be as low as the 40's. The supplying of epinephrine will not cure a case of Addison's disease, but the supplying of cortical extract, if only it is potent, will bring a patient back from what seems to be an almost fatal terminal condition. Incident to this improvement, the blood pressure rises. It is not known surely what

the relation of the medulla to the cortex is with regard to this matter.

Rogoff, in his excellent review of the glandular physiology of the adrenal medulla in the *Journal of the American Medical Association* of June 8 of this year, mentions the possibility that a certain degree of functional interdependence exists between the cortex and the medulla. Some believe that the material which is to become epinephrine is prepared in the cortex; others that epinephrine is actually manufactured by the cortical cells. I mention these opinions merely to emphasize the lack of definite knowledge with regard to the maintenance of normal blood pressure and the difficulty, therefore, of interpreting deviations from the normal.

Practically it is known and pharmacologically it can be demonstrated that epinephrine administered in proper dosage subcutaneously or intravenously will raise the blood pressure. This therapeutic effect depends on the pharmacologic action of epinephrine on the circulatory apparatus and it is not to be interpreted as a substitution of a pharmacologic preparation for a lacking endocrine secretion.

If the hypotension in these individuals were the important element, then raising the blood pressure with epinephrine or with its counterpart ephedrine should cure the patient's phenomena. It is obvious that no amount of raising of the blood pressure will change the habitus, will change the visceroptosis or will alter these individuals' physical or mental make-up. And we are, therefore, not surprised to find that the literature is in agreement that epinephrine or ephedrine therapy, while it does raise the blood pressure of these individuals, fails to give material relief. The experiment has been tried over and over again on countless individuals and always with failure. For this reason, the use of epinephrine or ephedrine in such cases has come into disrepute and has been largely abandoned. This, I think, is unfortunate for I believe there are certain phenomena, resulting purely from the hypotension from which these individuals suffer, which can be relieved by epinephrine or ephedrine without perhaps any effect on the other features of the disorder.

Given one of these asthenic, visceroptotic, hypotensive individuals who also suffers from dizziness or syncope, are we not justified in believing that these symptoms result from the hypotension and that if we help the hypotension we may prevent the dizziness and syncope from occurring? This I believe is an important matter. In our failure to

cure the entire picture in these patients we have abandoned the use of a therapy which will relieve certain of the symptoms, which symptoms in some of these individuals are the most disabling and unpleasant manifestations of the disorder.

I am quite sure of the correctness of this view. And I have had success with ephedrine in certain cases of this type. An individual who has a chronically low blood pressure may only occasionally suffer from vertigo or syncope. When this occurs I believe it is due to a transient increase in the hypotension. In other words, a still further transient lowering of blood pressure occurs. Sometimes such transient falls result from the same type of factor as we enumerated in discussing thrombosis. In other instances, they seem to be more related to change of posture, a matter to which we will return in a few moments.

If the cerebral anemia which causes the vertigo and the syncope is the result of transient hypotension and if by appropriate rationing with ephedrine we can prevent the fall of blood pressure to a level which produces cerebral anemia, then these patients will be relieved and are relieved of their vertigo and syncope. Therefore, rationing with ephedrine is a rational, excuse the pun, procedure in such cases, but I warn you not to expect to make over the tall, slender, asthenic into the sthenic athlete. We are treating certain manifestations of hypotension and these alone can you hope to relieve by this medication.

So much for the general group; now there are two special subgroups which I would like to mention. The first includes some cases of what is commonly known as Meniere's disease, the other that peculiar syndrome known as postural hypotension. I do not believe that hypotension is the explanation of all cases of Meniere's disease but I do believe that in some cases of Meniere's syndrome hypotension is an important feature and relief of this by ephedrine will lessen or prevent these seizures. Certainly it is worth trying. For if one can by the simple rationing with ephedrine, giving perhaps 25 or 50 milligrams two, three or five times a day, avoid the horrible swirls of vertigo which hurl the patients to the floor and render them frightened invalids, afraid to venture from home and also to avoid the abortive cures which are now popular, one has made a great success. I have such a patient in mind as I speak.

A woman, diagnosed as Meniere's disease by

trained clinicians and neurologists, suffering from frequent attacks of violent vertigo which prevented her going, as she said, even to church, who now on ephedrine drives an automobile and carries on a normal existence with but a very occasional mild attack. I have an hypothesis, totally unproved, for such cases. I call it the hypothesis of the smallest artery. We know, all of us, how frequent anomalies of the vascular tree are. We know that arteries of less than usual size are frequent. My theory is that the patient who, with chronic hypotension, occasional falls to still lower levels and with the occurrence of Meniere's syndrome at such times, is an individual who has a congenitally small artery to the middle ear so that when the pressure falls it is the area supplied by the small artery which first manifests the lack of adequate blood supply. The literature refers to the treatment of vertigo with epinephrine but I would urge the use of the longer acting ephedrine and the extension of vertigo to include even those cases that are apparently full-blown Meniere's disease. Certainly a trial can do no harm.

The other subgroup is that called postural hypotension. The cases in this group are not common, but the syndrome is clean-cut and seems to me to support the hypothesis that I have just been presenting so that I am tempted to tell you about this group of cases of postural or orthostatic hypotension, both because they are interesting, because they are frequently not recognized and because they support my argument.

Probably the small number of cases reported indicates rather our failure to identify this condition than the actual rarity of the disorder. The first cases were described by Bradbury and Eggleston in 1925 and since then a number of different reports have been forthcoming. The condition essentially is characterized by a very abnormal change in the blood pressure, when the individual shifts from the horizontal to the upright position. In most individuals there is little change in the blood pressure and usually some little increase in the pulse rate. In postural or orthostatic hypotension the blood pressure, both systolic and diastolic, drops sharply when the patient assumes the upright position, and curiously enough with this marked drop there is no increase in pulse rate. Many normal individuals have noticed at times slight dizziness or faintness when they suddenly assume the upright position; this may be seen in young people and also in the

elderly, in whom it is to be explained upon arterial disease. In both the young and the aged it probably depends upon some little lag in the blood pressure adjustments which maintain the blood flow to the brain. In these rare cases of postural hypotension, the symptoms which result are much more marked and certainly occur from cerebral anemia, from the far greater fall in blood pressure and a correspondingly greater failure to maintain cerebral circulation.

The etiology of postural hypotension is not known. There is a curious sex influence, in that most of the cases have been in men. Most of the individuals have been over forty years of age. Most of them have shown no recognizable arterial or circulatory disease. One might be tempted to make less of this syndrome, if the symptoms were wholly limited to the vertigo and syncope which accompany the fall in blood pressure upon assuming the upright position. But, curiously enough, there are some other rare disorder symptoms found quite constantly.

That these individuals are sharply different from normals is evidenced by the fact that the degree of systolic pressure drop has exceeded 50 millimeters of mercury in every reported case; the diastolic fall is definite but not as great. Such a drop may well bring the systolic pressure down to a very low level. In one patient reported by Barker, the systolic pressure standing fell to a level of from 45 to 80 millimeters of mercury. It is easily understood how, with a systolic pressure of 45, 50 or 60, vertigo and syncope of varying degrees could readily occur. Sometimes the patient merely experiences a little weakness, at other times definite loss of consciousness may occur. Unless the pressure is recorded one may be misled by the absence of any change in the pulse rate.

With these symptoms occur certain other findings, the most constant and peculiar of which is an alteration in the sweating of the skin. Sometimes there is a diminution in sweating and in other cases an actual loss of this function. Sometimes anhidrosis is patchy or unilateral at first but later it usually becomes universal. This has been present in most cases, has caused considerable distress and has been the cause sometimes of the patient going to see the physician. As a rule some of the patients have noted that they were less comfortable in the summer. Most of them have had a low basal metabolic rate. And Barker enumerates some other symptoms which

are less constant, including a slightly high blood urea, a greater excretion of urine during the night, and loss of sex desire and power, some slight secondary anemia with an accompanying pallor. For my purposes today these additional symptoms need little emphasis.

I wish to stress the postural hypotension with its accompanying vertigo and syncope. One or two of the cases have had some arteriosclerosis and in one the blood pressure was sometimes as high as 170 but fell into the shock level when the patient rose to the upright position. Here, again, we see the effect of transient hypotension in these cases induced by change in position. It is not necessary for our thesis that we speculate as to the mechanism by which these changes are brought about. Some have suggested that it depends upon a faulty functioning of the carotid sinus, that group of nerve cells on the carotid artery which is causing so much discussion today. In a recent report from The Mayo Clinic concerning the carotid sinus, Code and Dingle suggest that postural hypotension may be related to failure of the coronary sinus to react rapidly in changing intracarotid pressure. This could well be true but is still unproven.

Again in this condition, it is said that the vertigo and syncope can be avoided by the use of ephedrine taken in doses from 25 to 50 milligrams two, three or five times a day. Again we see the effect of this drug acting to prevent transient falls in pressure. It is by avoiding the transient hypotension that the symptoms resulting from it are avoided. Again we see the other symptoms of the syndrome uninfluenced. And it is interesting that those who have seen the most of these cases suggest that in addition to ephedrine pilocarpine be given for relief of the lost sweating. It is said to be highly efficient. So that in this condition we must treat the individual symptoms separately, and we must not allow our ignorance of the fundamental cause of the syndrome or the failure of one drug to relieve all of the symptoms to prevent us from administering symptomatic treatment if this proves helpful.

Personally I have never seen a clear-cut case of postural hypotension, although I have seen a good many individuals in whom change of posture led to mild symptoms. I see no reason, however, not to accept the condition as it is reported. I hope that I have not been so sketchy and rambling in this talk that you have failed to catch certain basic

ideas which I have tried to present with regard to hypotension.

The thoughts that I have hoped to present are easily recapitulated. First, I started by pointing out that, in contrast to the overemphasis which is in a large measure uselessly placed on hypertension, hypotension was getting too little attention. Next I stressed the fact that not only does hypotension occur as a constant finding but that just as there are wide swings upward in the blood pressure, so are there wide swings downward in the blood pressure as a result of a variety of influences.

Then I wished to bring home to you the fact that many of the factors lowering blood pressure can be identified and they can be distinguished from the factors which raise blood pressure. I next presented my thesis that transient hypotension is often the final determining factor which leads to the occlusion of an artery already narrowed and roughened, and that even transient attacks of low blood pressure will, under suitable conditions, lead to cerebral or coronary thrombosis.

I then stressed the point that it is important that we should distinguish cerebral thrombosis from cerebral hemorrhage and we should recognize the fact that low blood pressure has been the determining factor in cerebral or coronary thrombosis because of the effect that this has not only on the prognosis but also on the rationale of our treatment. I need not follow any further how this line of thought influences the treatment both in the attack but more importantly in the avoidance of recurrences in an individual who has already drawn to our attention the fact that he is subject to thrombosis.

I then went on to develop another line of thought to the effect that, even though chronic hypotensives can be relieved of their hypotension by ephedrine, this drug does that one thing and nothing more and those individuals continue to be asthenic, visceroptotic and psychasthenic, and there is little use in treating the hypotension or in considering it an important part of their case any more than there is in having a surgeon stitch their kidneys up or raise their stomachs by gastroplication. Nevertheless, in those instances in which, in addition to the chronic low pressure there are periods of greater fall in blood pressure with resulting symptoms, then epinephrine or ephedrine may give remarkably beneficial results. And, finally, I referred to a special group of cases in which sudden falls of pressure

occur, in these as a result of change of posture, and in these again I pointed out that ephedrine serves to relieve the phenomena which occur from the transient falls of blood pressure but does not influence the associated failure of sweating, etc.

I have hoped in this way to arouse your interest in hypotension, a very familiar and hackneyed subject but the importance of which I think has been of late lost sight of. Hypotension is a symptom, not a disease. We have lost interest in it because for awhile it was thought to be a disease and our treatment of it failed because we demanded of that treatment that the patient be cured of many ills not caused by the hypotension. If we will put hypotension back as a symptom and if we will recognize the frequency with which it causes distressing discomforts and even serious and fatal complications, then we will be quick to make use of every measure at our disposal to treat it and to prevent its occurrence.

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THE HYPOPHYSIS AND ADJACENT STRUCTURES

THEIR NORMAL AND PATHOLOGIC PHYSIOLOGY*

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I. PHYSIOLOGIC ANATOMY

1. *Embryology*. Its dual origin from outgrowth of third ventricle (para nervosa) as posterior lobe and from pharyngeal mucous membrane (Rathke's pouch), (anterior lobe) or pars anterior seu glandularis (anterior lobe including pars intermedia).
2. *The adult hypophysis*. Anterior lobe, pars intermedia, posterior lobe, hypophyseal cleft, Hering bodies.
3. *The histology*. Chromophile (eosinophile, basophile), chromophobe cell.
4. *Peculiar blood supply*. Arteries to hypophysis ending in capillaries, capillaries to venules, venules to secondary capillary network in hypothalamus.

II. THE EFFECT OF STIMULATION, IRRITATION, AB- LATION OF THE HYPOPHYSIS AND STRUCTURES IN THE PROXIMITY OF THE HYPOPHYSIS.

1. *The effect of extirpation of the hypophysis*.
 - a. Dwarfism.
 - b. Hypogonadism.
 - c. Retrogressive changes in the parathyroids, thyroids, thymus ($\frac{1}{2}$ wt. or atrophy) and adrenal cortex.
 - d. Effect of homeotransplants and extracts on (early work).
2. *Effect of extirpation or destructive lesion of the tuber cinereum (chromic acid)*.
 - a. Dwarfism not produced.
 - b. Enormous adiposity.
 - c. Hypogonadism, not as severe as in 1. Irregular sex cycles.
 - d. No changes in thyroid, thymus, adrenal or parathyroids.
3. *Irritative lesions of the corpora mammillaria*.
 - a. Experimental diabetes insipidus.
 - b. Extracts of the corpora mammillaria cause diabetes insipidus, etc.
4. *General physiology of the hypothalamus. Ransom on the hypothalamus*.
 - a. Outline of the hypothalamic region. From behind the optic chiasma to region just behind the corpora mammillaria, third nerve; includes, then, the infundibulum, pars nervosa of the

*Outline of illustrated lecture delivered before Fourteenth Annual Meeting of Pacific Northwest Medical Association, Spokane, Wash., June 27-29, 1935.

pituitary gland, tuber cinereum and corpora mammillaria.

b. Lesions and stimulations made in various parts of the hypothalamus by the Horsley Clarke stereotatic apparatus.

c. Effect of stimulation and lesions made in—

x. Stimulation (man) of the sympathetic nervous system. Increase in rate and amplitude of respiration, rise in blood pressure, dilatation of pupil, cardiac acceleration, contraction of the bladder, erection of hairs, inhibition of the movements of the gastrointestinal tract. Emotional concomitants of fear and rage.

y. Destruction of—

* Cats—somnolent. Cataleptic state. Could be molded into any position.

** Wild monkeys. Became temporarily more docile (pets), slept a good deal (exp. encephalitis lethargica). Like sleepy old men, yawned a great deal.

*** Lesions of tuber cinereum, no obesity. (?)

**** Lesions placed so as to interrupt or destroy the hypothalamic hypophyseal tract (to postlobe of the hypophysis) after about eleven days, permanent polyuria (diabetes insipidus). After operation a temporary polyuria. Back to normal for a few days or so, then a permanent polyuria (no sugar). This lesion dorsal and lateral to the corpora mammillaria. Atrophy of the posterior lobe.

III. THE EFFECT OF INJECTIONS OF EXTRACTS OF THE PITUITARY GLAND.

1. *Principles or hormones isolated from the anterior lobe.*

a. The growth hormone (Phyone).

* Restoration of growth in the hypophysectomized animal.

** Production of gigantism in rat, dachshund, blood hound, with splanchnomegaly and skin in folds (like in St. Bernard).

*** White crystalline powder, stable (dried) efficient in 0.5 mg. doses daily in rats.

b. Gonadotropic. (Hebin). Now 1935, (follicle stim.: menopause urine) and (luteinizing hormone) (pregnancy urine).

(1) Restoration of sex, hormone nonspecific.

(2) Precocious sexual development in immature. Sexually mature suckling. Crystallized. 2 mg. doses.

(3) Insertion of prolan A and B. Describe

Ascheim-Zondek test. A. P. L. hormone. Not the gonadotropic.

(a) Prolan has limited effect; gonadotropic not.

(b) Prolan no effect on immature testes.

(c) Will not cause reddening of skin of monkeys.

(d) Prolan no effect on hypophysectomized monkeys. Prolan plus some constituent of anterior lobe, not gonadotropic substance will give maximum gonadotropic effects (ovary of mouse from 15 to 300 mg. in 96 hours. Prolan A + B = gonadotropic.

c. Lactogenic hormone: mammary gland built up by theelin. Then anterior lobe extract gives milk secretion.

d. Thyrotropic hormone: Loeb's histologic work. Hypophysectomy rate low MBR and have no SDA action. Thyroidectomy abolishes SDA. It took anterior lobe and posterior lobe together to restore. Hypophysectomized rats very sensitive to thyroid medication. Why, not known. Several observers have produced exophthalmos in ducks, rats and guinea pigs by anterior lobe extract.

e. Fat metabolism hormone. Ultrafiltration separates from others. Found in blood. Injected causes an acetoneemia. *Only* in blood when fat is burned (Anselmino and Hoffmann).

f. Adrenaltropic hormone. Hypophysectomized animals show not only cortical atrophy but symptomatology of Addison. Gonadotropic substances not affected, neither cortin (Swingle—Pfiffner), but anterior lobe growth promoting which is not too pure restores animal promptly.

g. Intermedin in anterior lobe, posterior lobe, infundibulum and wall of the third ventricle. Prepared in different way than any of the other active substances. Causes pigment formation, red in skin of abdomen and thorax of certain fish, phoxinus which occurs ordinarily during mating season. Controls diabetes insipidus.

h. Parathyrotropic substance (Hoffmann and Anselmino). Thermolabile. Raised blood calcium (in dogs and rats) but not in parathyroidectomized animals. Under its influence parathyroid is increased two to three times in size. Increase in clear cells over dark cells, oxyphile cells diminished, strong vascular reaction. Separate hormone.

i. Gonotropic hormone stimulating genital tract

directly (not through ovaries) in conjunction with fat soluble A. Without a cornified vaginal epithelium. In spayed animals this gonotropic hormone gives rise to mucoid cells. If diet deficient in A no mucoid cells. (See *J. A. M. A.*, February, 1935, Vol. 104, p. 464.)

- j. Pancreaticotropic hormone. Discussion of Housay's work. References, (see Evans, *J. A. M. A.*, August, 1933; Evans, *J. A. M. A.*, February 9, 1935, p. 464; Smith & Collip, *J. A. M. A.*, February, 1935, Vol. 104, pp. 548, 553, 556).

2. Posterior lobe extracts.

Pituitrin consisting of: (Oliver and Shafer, 1895.)

- a. Beta hypophamine (vasopressin). Pitressin, pressor activity, motor to gastrointestinal tract, has diuretic—antidiuretic action; nasal administration most effective (pressor activity, 40 per cent solution of chloretone in 40 per cent alcohol intrap). Tolerance on repeated injection preceded by a depressing action in animals with high blood pressure and not due to histamine. Explanation of diuretic-antidiuretic action. Shock. Diabetes insipidus.

- b. Alpha hypophamine (oxytocin) pitocin. Inertia uteri, postpartum hemorrhage, uterine contractions after cesarean, in cases of high blood pressure (eclampsia). Not to be used before effacement in delivery.

* Hering bodies and pitressin and pitocin.

** Pitocin passage into cerebrospinal fluid initiating labor? No. Importance of calcium ions.

*** The galactagogue action of pituitrin.

- c. Action of pituitrin on inanition lipemia.

* When injected subcutaneously.

** When injected subdurally before and after extirpation of the tuber cinereum.

*** Before and after either section of the cord or section of the splanchnic fibers to the liver.

- d. Melanophore substance commonly associated with pitressin but distinct from it. Use of decerebrated frogs best. Function?

- e. Intermedin (phoxinus) units. Used in diabetes insipidus.

- f. Factor producing increased amount of HCl.

3. Pars Intermedia.

- a. Melanophore substance particularly abundant in (Van Dyke).

- b. Intermedin (v. supra).

IV. OTHER REPORTED ACTIVITIES OF ANTERIOR LOBE EXTRACTS.

- a. Neutralized alkaline extract of Teel—diabetes

insipidus. Not all preparations gave the result. Appreciable diuresis. No reports lately.

- b. Certain preparations made from anterior lobe (devoid apparently of the thyrotropic principle). Caused reduction in basal metabolic rate associated with nitrogen retention and diminution of NPN content of blood (growth hormone or one closely associated with it).

- c. Anterior lobe extracts can and do give rise to glycosuria. Hence related to CHO metabolism. Glycosuria usually present in 40 per cent of the cases of acromegaly, a condition admittedly due to hyperfunction of anterior lobe. Removal of hypophysis, furthermore, gives rise of hypoglycemia under certain conditions so severe that the animal may die from it or in hypoglycemic shock.

- d. Stimulation of hair growth in alopecia areata or general lack of hair.

V. CLINICAL SYNDROMES ASSOCIATED WITH OR BELIEVED TO BE ASSOCIATED WITH LESIONS IN OR ABOUT THE HYPOTHYSIS.

- a. Acromegaly (eosinophilism), gigantism.

- b. Froelich's syndrome, dystrophia adiposogenitalis (hypogenitalis).

- c. Diabetes insipidus (corp. mam., or anterior lobe, int. of fibers of hypothalamic hypophyseal tract).

- d. Cachexia hypophyseopriva (Simmond's disease).

- e. Laurence—Moon—Biedl syndrome (less than 100 cases).

- f. Pituitary basophilism (Cushing's disease).

- g. Gynecomastia Hypogonadism associated with chromophobe tumor.

- h. Variety of adiposities. (1) Hypofunction of posterior lobe. (2) Insufficient liberation of the fat met. hormone. (3) Dest. injury tuber. (4) Increased food intake without sufficient exercise.

Comment on the Gonadal Atrophy of all Syndromes.

SYSTEMIC THRUSH IN CHILDHOOD. During twenty-five years of pediatric practice Frederic W. Schultz, Chicago (*Journal A.M.A.*, Aug. 31, 1935), has seen five patients with generalized systemic thrush, all showing very unusual symptoms. Four of these cases are reported here; the fifth case was the one reported by Dr. Christison. The patient had been under the author's care for about one year. The interesting feature of the cases reported consists in the extraordinary symptoms presented. The dwarfing effect of the disease presented in two of the cases and the generalized alopecia noted in three of them have to his knowledge not been reported in the literature. The fairly rapid form of sepsis observed in the case of the infant also seems to be exceedingly rare.

RECTAL AND RECTOSIGMOIDAL CANCER

THE SURGICAL TREATMENT AND PROGNOSIS*

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Rectal and rectosigmoidal cancer as a health problem is obviously of importance when one recognizes the fact that 10 per cent of all cancers occur in the lower gastrointestinal tract. The number occurring in the rectum and the colon is approximately the same.

It has long been recognized that malignancy in this segment of the alimentary canal develops slowly, or at least remains latent for a considerable length of time before it is recognized, but to offset this factor it is also a well recognized fact that cancer in this location usually is of a low or moderate grade of intensity and metastasizes with relative slowness. It is unfortunate that there are no pathognomonic symptoms of early rectal cancer, but if irregularity of bowel symptoms extending over a period of three or more weeks, or blood on the stool or in the stool persisting for a long time were recognized as danger signals by not only the laity but the profession, early diagnosis of lesions in this vicinity would be materially forwarded, and the stigma of admitting that more than 10 per cent of the total group of rectal cancers had been operated upon for hemorrhoids because of rectal bleeding when the initial lesion was a malignancy, would be removed.

All rectal cancers are within reach of the examining finger and most rectosigmoidal cancers may be felt with the finger in the rectum, if the patient is instructed to strain against it. All rectosigmoidal and low sigmoidal cancers may be diagnosed accurately by means of the proctoscope. Indeed, it seems impossible to believe that any operation on the rectum in this advanced age of surgery should be undertaken without proctoscopic examination. but it must be admitted that apparently not a few are undertaken without a digital examination beyond the anal canal.

Most cancers of the rectum are rectosigmoidal cancers, if we consider this segment of the bowel which is one-half intraperitoneal and one-half extraperitoneal an anatomic division. The sigmoid empties into the top of the rectum at an angle as it crosses from left to right and here the bowel is relatively fixed for lack of mesentery and because of this angulation. In consequence, rectosigmoidal

cancers are more likely to produce obstructive symptoms than those occurring in the ampullary portion of the rectum, and consequently in many cases may be diagnosed at an earlier stage for this very reason.

Perhaps the most common symptom which sends patients to a physician for a rectal examination is bleeding. This occurs in 85 per cent of all cancers of the rectum at some time during the course of the disease, and in more than one-half of the cases occurs as the initial symptom. The blood from rectal growths is bright red. Indeed, the blood from all left colonic growths when seen on the stool or in the stool is bright red. Occult blood is not a symptom of cancer of the colon and rectum. The bleeding occurs only after ulceration has eroded into a vascular area, and consequently the growth is present for a long period of time, on an average of ten and one-half months, before the patient seeks advice for this symptom.

Irregularity of bowel habit, that is, alternating periods of diarrhea and constipation, occurs usually much earlier in the disease in a majority of cases and is a fairly trustworthy symptom. If an individual has these alternating periods of diarrhea and constipation persisting over a period of two to three weeks, it should inevitably call for a proctoscopic and radiologic examination of the lower gastrointestinal tract as well as an examination of the stool.

Constipation alone is present in a high percentage of cases, just what percentage is not capable of being accurately determined, but increasing constipation should be looked upon as suspicious evidence of a probable malignancy in the left colon. Pain and tenesmus are untrustworthy symptoms of a rectal cancer and are not to be relied upon. The tenesmus is in direct ratio to the proximity of the growth to the rectal sphincter. Pain, likewise, depends upon a number of factors, obstruction, involvement of the sphincter muscle, etc. Loss of weight, loss of strength, anemia and such signs are not symptoms of cancer of the rectum at all. They are symptoms of metastasis usually of a generalized variety, and are signals of impending dissolution.

Once a rectal or rectosigmoidal cancer is suspected, its presence or absence can be confirmed in every case by a digital and proctoscopic examination. Usually there is small question of the pathologic type of growth even by digital examination, if the cancer can be felt. A single, punched-out, ulcerated lesion or a papillomatous type of growth

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of adenoid-like tissue is characteristic of carcinoma. Multiple lesions may be present occasionally, but usually that means that a carcinoma has developed upon one of a number of polyps existing in the same area.

The question of biopsy is an important one and I believe, where adequate pathologic confirmation is at hand, routine biopsy is not only useful but desirable. I have no confidence in the suspicion that biopsy of a rectal tumor, which is followed immediately by cauterization, has any deleterious effects or any influence on the spread of carcinoma cells. Such objection to this type of diagnostic procedure has been raised frequently, but more in the nature of an expression of opinion rather than a scientific fact capable of proof.

Ten years ago I began making this a routine step among the methods useful in diagnosing cancer of the rectum and rectosigmoid, and have no knowledge at the present time of any data which indicate there might have been increased metastases in my cases as a result. It is not so essential a step in the diagnosis of the average carcinoma of the rectum as it is a valuable aid and yardstick by which we can measure prognosis. The average carcinoma of the rectum and rectosigmoid as viewed through a proctoscope is so characteristic in its appearance that there is small necessity for microscopic confirmation. On the other hand, to remove a piece of tissue and subject it to microscopic grading by Broders' method gives one an accurate indication as to just what the outlook may be in this individual case.

The diagnosis, then, of cancer of the rectum and rectosigmoid is a relatively simple matter, if adequate examination, digital and proctoscopic, is indulged in. Unfortunately one must confess that too frequently patients with rectal ailments are treated for supposedly benign lesions without adequate examination and without a differential diagnosis. Certainly there are some benign lesions of the rectum which produce the early symptoms described above, but the point is that in any given case malignancy may be the underlying cause of such a syndrome, and exclusion by digital examination and proctoscopic visualization is so simple and accurate that there is small excuse for the waste of valuable time and sacrifice of many lives which follows casual, dilatory, or no examination at all, before the institution of proper treatment.

TREATMENT

With our present-day knowledge of the pathology, grading and prognosis following successful surgical extirpation of cancer of the rectum, there is small argument that radical surgery offers the highest chance of successful cure or prolonged palliation to the largest number of sufferers from this ailment. At the same time, one should not deprecate the use of radium in certain cases of rectal and rectosigmoidal cancer, either alone or in combination with surgery, in an attempt to cure the condition or in an attempt to bring about palliation.

Roentgenotherapy, I think, has demonstrated its small sphere of usefulness in the treatment of rectal cancer even as an adjunct. In my own experience, I have not felt that any importance could be attached to it as a valuable therapeutic agent in the treatment of cancer of the rectum, and I have not seen any very satisfactory results obtained from the standpoint of palliation.

With radium, the direct application through a proctoscope unquestionably does permit the destruction of cancer cells in many cases to which the irradiation reaches. That some growths can be successfully destroyed by radium is beyond question. That growths which have metastasized to the glands may not be successfully treated by radium is equally unquestionable. It seems there may be certain tumors which because of their grade of malignancy, if diagnosed early, might be treated by radium with hope of successful prognosis after a long period of years has elapsed, but in the routine case which is seen on the average of about ten and one-half months after the patient knew of the initial symptoms, the chances of glandular involvement are exactly 46 per cent, and consequently to depend on anything short of a radical extirpation not only of the growth itself and the glands in its immediate vicinity, but the secondary group of glands beyond the growth, is to curtail the chances of a large group of individuals.

One cannot prophesy what the future holds for the combination of radium and radical surgery for this group of cases, but it seems a sound position to take that perhaps the field of both agents will be extended and a larger number of cases treated in combination than hitherto. The rectosigmoidal growths are so far away that the direct application of radium is difficult even by proctoscope, and at the same time the glands in the mesentery of the sigmoid being involved, the hope of destruction of even the nearest metastases is nil. Radium for

epitheliomas of the rectum, however, is the treatment par excellence.

The selection of cases for operation and the operation for individual cases is not a matter which can be determined by rule of thumb or standardization to the point where each individual can be properly allocated to his operative niche, nor can the casual surgeon expect to carry out extensive radical extirpative maneuvers without a prohibitive casualty list.

Except for that group of cases where acute intestinal obstruction is present as the initiating symptom, cancer of the rectum and rectosigmoid should not be operated upon after the usual custom of chronic ailments, but should be submitted to a preliminary preparatory period which aims at not only the rehabilitation of these devitalized and debilitated individuals, but at the same time the reduction of obstruction and intracolonic pressure which has resulted from the stenosing growth, in the majority of instances.

To eliminate the noxious effects of insidious partial intestinal obstruction, and to build up an operative reserve which will tide the individual over a period of postoperative depression, is accomplished by a cooperative regime which takes from five days to a week and which is best handled under hospital management. A diet which is rich in carbohydrates but low in proteins, including fruit juices, candies, jello, etc. is given. Daily irrigations of the rectum are employed, and in addition mild cathartics, if there are no objective symptoms of obstruction.

Hydration is accomplished by forcing fluids and in addition by employing blood transfusions, if the patient is at all anemic or if the general resistance seems to be quite low. I have found blood transfusions most advantageous preoperatively, and employ them routinely postoperatively whether or not there seems to be any distinct indication for them.

In 1928, following some experimental work by Herman and Bargaen, we began to use an intraperitoneal vaccine on my service, which had been prepared from colon bacilli and streptococci obtained from fatal cases of peritonitis. This vaccine produced a temperature and general reaction which usually subsided at the end of twenty-four to forty-eight hours. At that time and subsequently we have reported a great reduction in mortality, accrediting it largely to the use of the vaccine. I am convinced, however, that enthusiasm for this apparently logical procedure allowed us to accredit to it a too major part in the operative prognosis.

While I believe that it has a distinct field of usefulness and that its employment in certain cases will assist in the reduction of the hospital mortality, I confess that there are dangers associated with its use which may not be viewed casually. That one will occasionally produce a lethal peritonitis by its administration seems logical. In the last three years I have abandoned its use and in more than three hundred consecutive operations on the colon and rectum have still further reduced my mortality by a longer preoperative period of preparation and a more careful and painstaking operative stage, and at the same time without decreasing the scope of operability.

The preoperative period is one of the most important stages in the surgical treatment of carcinoma of the colon and rectum, and the sequence of steps aimed at decompression, rehabilitation and increasing the patient's resistance against a lethal infection, cannot be too strongly emphasized. Which is the most useful of the steps employed is perhaps of no great importance, and the advantage of their combined usefulness is no longer controversial. The results of adequate preliminaries before undertaking exploration will be reflected in the increasing decline of surgical mortality and improvement of end-results.

Selection of Operation. There is no standard which is applicable to all cases of cancer of the rectum and rectosigmoid. The fundamental principle that cancer of the rectum and rectosigmoid should be removed with the gland-bearing areas in juxtaposition to it, which means the mesentery of the sigmoid flexure, is just as basic as the routine removal of axillary glands in operations for carcinoma of the breast. My thesis is that every case of rectal and rectosigmoidal cancer should be subjected to as radical an operation as the judgment of the surgeon and his experience will allow him to perform while maintaining a mortality of around ten per cent and an operability rate of about fifty per cent.

One must have at least four procedures at his command for operating upon cancer in this region, if he is to accomplish a satisfactory prognosis, namely: Miles' operation, combined abdominoperineal resection in one stage; Rankin's operation, combined abdominoperineal resection in two stages following Miles' technic; Jones' operation, combined abdominoperineal resection in two stages; and Mummery's operation of colostomy and posterior resection. I mention segmental resection, local

destruction of the growth by cautery or electro-surgery with preservation of the rectal sphincter only to condemn them. These procedures have no place under present-day standards and principles of cancer surgery in the armamentarium of the surgeon who hopes to cure a high percentage of rectal and rectosigmoidal cancers.

Miles' operation in one stage is unquestionably the most advantageous and desirable procedure, but its usefulness is limited to the sturdy group of surgical risks who are able to withstand a formidable procedure in one stage. My modification of Miles' operation has permitted me in certain cases, I think, to carry out a wide-spread radical procedure without mortality where a single stage operation would have been probably too great a task for the patient to survive.

Jones' operation is a most satisfactory radical surgical procedure, the main drawback of which is that it is done with a loop colostomy which sometimes leaves a mucous fistula posteriorly. Mumery's operation of colostomy and posterior resection has a distinct field of usefulness in the treatment of cancer of this area, but I am convinced a much smaller scope than some of its ardent advocates urge. One cannot remove sigmoidal mesentery in this operation, and though the peritoneum is opened, the posterior resection following colostomy remains a local type of excision. The percentage of cures remains far less gratifying following this type of surgery than with the use of more widespread and radical operations.

A thorough knowledge of the anatomy and pathology being dealt with, and the employment of one of these four procedures, selected according to the individual requirements of each case will, I am sure, yield the highest percentage of satisfactory end-results. The technical steps of all of these procedures are too well known to be repeated in this connection, but it is obvious that they are highly specialized procedures which call for most painstaking attention to details as well as a ripened surgical judgment.

PROGNOSIS

Prognosis from cancer of the rectum and rectosigmoid depends on two types of influence, first, the intrinsic activity of the cancer cell as measured by Broders' index of grading, and, second, extrinsic or modifying factors such as coexisting debilitating diseases and the general condition of the patient, duration of the growth, age of the individual, etc.

I am convinced that of all the factors involved, the grading of the growth is the most important, since the activity of the cancer cell determines whether or not it early involves the lymphatics in the immediate vicinity of the growth or transposes itself through the blood stream to even more distant and unique location.

Grading of the growth by Broders' method reveals that the vast majority of cancers of the rectum and rectosigmoid fall in the lower brackets. In a series of three hundred cases which I reviewed for the Surgical Section of the American Medical Association in 1933, taking the whole colon and the rectum as a single organ, 13 per cent of all the growths occurred in Grade 1, 58 per cent in Grade 2, 21 per cent in Grade 3, and 8 per cent in Grade 4. The vast majority of the growths occurring in Grade 2 explains satisfactorily the reason that they are present such a length of time before metastases take place. Yet, metastases do spread to the regional glands in 46 per cent of the cases of cancer of the rectum and rectosigmoid by the time they come to resection.

The extrinsic factors mentioned above unquestionably modify very materially operability and influence operative mortality. These two factors are closely related. The scope of operability must necessarily be a flexible one and its horizon differs materially in the hands of different surgeons, modified by experience, judgment and boldness in operating. A fair standard of operability is one which allows the removal of all growths not too firmly fixed to the abdominal parietes or adjacent viscera and without metastases to the liver, in those patients whose physical status is not too low to preclude radical surgical measures.

Occasionally a palliative resection is justified, but that consideration is beyond the scope of this paper. The operative mortality which is from year to year steadily around 10 per cent can be, I think, accepted as a reasonable standard. I have carried out the combined abdominoperineal resection in one or two stages in the last four years in 99 cases with 8 deaths, a mortality of around 8 per cent. This has been done with an average operability of approximately 60 per cent. The operability figures have never fallen lower than 50 per cent and the high year was 68 per cent. About 5 per cent is the mortality figure for the posterior resection following colostomy, and here the operability figure is approximately the same, but the five-year results are widely different.

In my own series of three hundred cases operated upon by colostomy and posterior resection, 38 per cent lived five years or more. Mr. Miles, on the other hand, using the combined abdominoperineal resection in one stage reports a 79 per cent five-year cures with an operability, however, of only 30 per cent. His operability figures are notably lower than the other groups and for that reason the selection of cases may be a narrower one, but his colleagues, extending the horizon of operability a bit without increasing the mortality over 10 per cent, are reporting higher percentage of five-year cures than following any of the other types of operative maneuvers. My own series of combined abdominoperineal operations does not include a sufficient number of five-year patients to study the end-results in comparison, but I am firmly convinced that the principles of the combined abdominoperineal resection in one or two stages, when it may be done with an operability of 50 per cent and a mortality of around 10 per cent, should be strictly adhered to and that the less formidable procedure of posterior resection following colostomy after the method of Mummery should be reserved for the higher risks in the older people who may not undergo the more radical operation.

To urge more radical operations in the better risks, more careful attention to details at operation, better preliminary preparation and rehabilitation is such an obvious necessity that its emphasis seems hardly necessary, but it is only by careful attention to these minute details that the present-day status of surgery for cancer of the lower gastrointestinal tract has been arrived at. It is not too much to hope that in the future increasing efforts at early diagnosis will be rewarded by a widening of the horizon of operability in a manner still consonant with a continued decline in surgical mortality.

ALLERGIC REACTIONS ASSOCIATED WITH COHABITATION.

Warren T. Vaughan and Richard W. Fowlkes, Richmond, Va., (Journal A.M.A., Sept. 21, 1935), cite four cases that illustrate the fact that symptoms associated with contact with some single individual are probably due to some allergenic substance in the person's immediate environment. In view of present immunologic concepts, this seems much more logical than some curious and unexplained sensitization to what are essentially homologous proteins. Rattner and Pusey report the case of a young married man with dermatitis due to a certain perfume which his wife was in the habit of using. Ford reports a case of contact dermatitis due to quinine, confirmed by a patch test positive to the drug, and manifested by a vesicular dermatitis of the face, scalp and neck following two applications of a hair tonic. Metzger has described a case of asthma from cohabitation due to orris root. Duke described the case of a woman with asthma following coitus, which the husband thought was due to sensitization to semen. Duke, however, concluded that it was a case of physical allergy due to heat and effort.

EXTRAPERITONEAL CESAREAN SECTION*

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Cesarean sections are done under all sorts of conditions, by all types of operators, the well qualified obstetrician, the general surgeon and the occasional surgeon. This set-up will continue and probably rightly so, as time is in many cases the essence of success.

However, in assuming the responsibility of two lives it devolves upon the surgeon to employ the safest procedure available. In country districts the general surgeon and the occasional surgeon do the majority of these operations. They have been and are now curiously blind and deaf to the mass of evidence discrediting the classical section. This condition, or state of mind, is due in part to the obsession that the essential factor in this spectacular performance is speed. Also, in his small series of cases the law of averages may not have caught up with him and he sees no reason for making a change.

Habit and inertia blind him to the very definite mortality and morbidity threatening his potentially infected patient, upon whom he purposes to do a classical section and he must consider every case in labor potentially infected regardless of the time in labor or aseptic precautions observed. Personally, I get no elective cases and I feel that we who have only small series of these cases should, insofar as we can, perfect ourselves by using in every case a method that may at any time be life-saving.

In addition to the tragedies of the death from sepsis or the subsequent ruptured uterus, my experience has been that the classical operation is too often followed by a stormy convalescence, often by some degree of ileus and gastric dilatation, much strain on the abdominal wall with some degree of hernia. Daily¹, in a summary of 500 cesarean sections, noted that 75 per cent of classical sections and 66 per cent of Porro sections became febrile and the balance, all laparotrachelotomies, showed 49 per cent febrile. No extraperitoneal sections were included in this series.

During the past twenty-five years the profession has repeatedly read the statement that extraperitoneal removal of the fetus is difficult for the surgeon and dangerous to both mother and child. This has been copied into books of general surgery and

* Read before the Forty-sixth Annual Meeting of Washington State Medical Association, Everett, Wash., Aug. 13-14, 1935.

1. Daily, E. F.: Cesarean Section. Analysis of 500 Consecutive Operations. *Am. J. Obst. & Gynec.*, 30:204-208, Aug., 1935.

manuals of obstetrics long after those who originated the objections have abandoned the classical method.

The objections are usually that the bladder or ureter may be injured. We note, however, that the loose subserous cellular tissue of the lower abdominal wall at the end of the period of pregnancy allows the separation of the bladder from its peritoneal attachments with great ease and safety. The ureter should not be a factor, it is outside of the operative field. A torn bladder can scarcely be overlooked and fortunately for all of us may be repaired. Hemorrhage has been cited as another objection. I cannot follow this, as surgery is essentially a procedure that avoids hemorrhage if possible but controls it when met.

There have been many more classical sections done than the extraperitoneal and the transperitoneal low cervical combined. This has entirely changed and in the past three years one large series show less than 2 per cent of classical and 98 per cent of low cervical operations. The mortality rate in the former was more than double that of the latter types of operation, despite the fact that the risks were better in the cases that were subjected to the classical.

It would seem, therefore, that the surgeon who routinely does the classical section is assuming considerable responsibility, and as the extraperitoneal approach gives us a method whereby we may empty the uterus with relative safety at any stage of parturition, and in the event of attempts at forceps or version delivery or prolonged manipulation of any sort having failed, it is generally conceded that the best results can be obtained as far as protecting the peritoneum is concerned by a true extraperitoneal delivery, and I find it very simple and satisfactory.

Sodium amytol, $7\frac{1}{2}$ grains, may be given by mouth or vein an hour or less before operation. No obstetrician would give morphine to a mother an hour before delivery but it is surprising in going over case records to find how many surgeons order morphine prior to section.

The bladder should be emptied by catheter and the catheter left in. A comfortable, well-padded table should be in the partial Trendelenburg position. Suction apparatus should be provided.

The choice of anesthesia is of great importance in those patients exhausted to the border-line degree either from prolonged labor, hemorrhage, infection or eclampsia. The consensus in America seems to be that spinal anesthesia has no place in this operation but in France and Germany it is much used and it would seem that the technic of administration and

the amount of novocaine given is of extreme importance. In elective cases and fair risks the spinal block is ideal. We feel that sodium amytol preceding the spinal has an antidotal effect on novocaine. Also that ephedrine does no harm and we use it. We get excellent anesthesia by a concentrated solution 2 cc. of spinal fluid dissolving 100 mg. of novocaine crystals. This is given with patient lying on her side, keeping her level for three minutes to allow the cells of this section to become saturated and then lowering head to offset bulbar anemia. From observation it is doubtful that the length of a spinal anesthesia is governed by the amount of novocaine used and the above mentioned dose is ample for any cesarian section.

Where the patient is shocked with lowered blood pressure, the use of novocaine infiltration with intercostal nerve block has fewer objections than any other anesthetic and in no way complicates or prolongs unduly the manipulations, while in itself it demands a care and gentleness that these below par tissues should have. Also, it in no way interferes with uterine contractions, a very desirable condition when using a low cervical incision as it assists materially in emptying the uterus. If a short nitrous oxide gas administration is needed during delivery, this does not compare with an ether anesthesia.

Briefly, the Latzko type of operation is followed. Novocaine 1 per cent with 3 min. of adrenalin to the ounce is used. The skin, midline from pubes to umbilicus, should be infiltrated, opened to the fascia and retracted to the left. The anterior layer of left rectus fascia is injected and 5 cc. of solution is carried laterally 4 cm. and through the fascia in various places to the right and left, blocking the lower dorsal and the lumbar nerves. The left rectus sheath is opened and the muscle retracted laterally. The posterior layer is infiltrated and incised down to the peritoneum. An incision of ample length is important, the lower end being well down to the pubes. Some infiltration of the subserous tissue may be needed.

This infiltration helps to separate the bladder from the cervix and also helps to define the reflection of the peritoneum onto the anterior wall of the uterus. With dry gauze the peritoneum is carefully separated upwards from the front of the lower segment of the uterus and the bladder brushed over to the right side. When the surface of the uterus has been sufficiently cleared, one is surprised at the thinness of the cervical wall and how closely the head is to one's fingers. At this time one can give morphine without danger to the child and $\frac{1}{2}$ cc.

of pituitrin. If the patient is at all apprehensive, a few whiffs of nitrous oxide plus oxygen may be given.

In cutting toward the head great care must be taken not to injure the baby. After nicking the wall the suction apparatus is used to keep the field clean and bandage scissors are recommended to enlarge the opening. Pressure by assistant on the fundus and sliding the head forward with the left hand effects delivery without trouble. The contracting uterus should expel the placenta and the membranes very soon.

The closing should be done with great care, using a running No. 1-20 day catgut and outside this another, folding the edges over. The upper angle should be carefully examined for any tears or bleeding points. The bladder is lightly matted back and the incision closed in layers. The rectus muscle should be stitched mesially to avoid future spreading. Transfusion and glucose or saline should be used at once if at all indicated, as now is the time to offset shock.

With a high temperature and a frank infection a Porro should be planned. In this case a transperitoneal low cervical operation should be done, using a suction apparatus and protecting the bowels meticulously with dry gauze. When the uterus is empty its removal is extremely simple and the stump should be tightly closed.

Norton² reports twenty-six cases of true extraperitoneal cesarean sections. To this I can add three, making twenty-nine cases without maternal mortality. In one of my cases the peritoneum was opened, making ten cases in the series where this happened. The tear was stitched up and no complication ensued. He also mentions the invasion of the bladder in two cases, both clearing up without trouble.

CONCLUSIONS

The deliberate invasion of the peritoneal cavity in the face of infection, when it may be avoided, is not a correct surgical procedure.

The smooth convalescence and security of the extraperitoneal approach to the lower segment makes for earlier operation when indicated, and also makes a safer alternative for a Porro in many cases that would otherwise be beyond help.

The objections made to its use do not stand in practice and it is difficult to see the need of a transperitoneal operation.

INTERNAL DERANGEMENT OF THE TEMPOROMANDIBULAR JOINT

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The infrequency of serious derangements of the temporomandibular articulations is remarkable, when the comparative frequency of injury to the jaw is considered. There is very little information readily available on the surgery of this ailment. The available texts devote only a few lines to discussion of such surgical treatment. Information from actual experience, therefore, is not easily obtained.

The common injuries likely to traumatize the temporomandibular joints are: (1) Falls wherein the symphysis menti strikes the ground. (2) Blows on the chin, especially with the teeth separated. (3) Associated with injury sufficiently severe to produce a fracture of the mandible or the articular fossa of the temporal bone. Such an injury may be overshadowed by symptoms produced from evident fracture of the mandible in the acute stage. Local symptoms indicating joint injury may be tenderness, swelling, ecchymosis or hemorrhage in the external auditory canal. These local signs if unnoted may be no longer present as indicators, but local disability may be manifest by a partial, permanent or temporary ankylosis of the jaw, after the immobilization period for evident fractures has been completed. (4) Mild injuries from manipulation of jaws or teeth, or unusual biting stress.

The natural recuperative powers of this joint are remarkable, since only in the severe injuries usually associated with fractures does ankylosis tend to appear, and then it is usually only partial and results from gross structural changes of the joint anatomy, rather than true internal derangement. This is borne out by the experience of a large number of physicians and laymen.

The less severe disturbances, such as painless clicking or cracking in the joint on chewing or moving the jaw, are frequent and sometimes permanent, often periodic, but usually disappear in time. Such disturbances often follow known injuries and are not considered seriously by patient or physician, unless accompanied by persistent mechanical locking or pain.

In the acute stage of simple internal derangement, a period of rest followed by a period of avoidance of chewing firm food, plus local physical therapy, is all that is required. Immobilization of

2. Norton, J. F.: Review of 26 Cases of Extraperitoneal (Latzko) Cesarean Section. *Am. J. Obst. & Gynec.*, 30: 209-213, Aug., 1935.

fractures may interfere with treatment to recognized temporomandibular joint injuries and may predispose to joint stiffness. This may be improved by active function, physical therapy and stretching by means of a spud.

The following case report is an example of an unusual sequel to temporomandibular joint injury requiring surgical relief.

Miss O. P., age 18, injured the left joint of the jaw and several teeth when she fell a distance of about nine feet, striking face down on her chin. For two or three weeks she had local pain, tenderness and disability on chewing. This gradually disappeared until about one year later, when pain, stiffness, catching on opening the mouth and limited motion of the joint were noted. There was morning accentuation of disability, also increase from weather changes.

On the first examination, about two months before operation, a distinct jar could be felt in the left temporomandibular joint, when the mandible was depressed to a certain point. There were local joint tenderness and moderate limitation of motion. This girl was observed over a period of two months, during which time there was a progressive



Fig. 1. Front and side views two months after excision of left temporomandibular fibrocartilage.

decrease in the ability to open the mouth; the teeth could be separated only about one-half inch between the incisors. Subjective symptoms increased. The clicking or jarring gradually became obliterated, probably due to inflammatory reaction and decreased motion.

Operation. On July 7, 1934, at King County Hospital, the intraarticular fibrocartilage was removed. A one-inch linear incision was made obliquely in the skin over the temporomandibular joint, in the direction of the zygomatico-temporal branch of the facial nerve. Bleeding was profuse and continuous. The articular disc was removed with a transverse section of the external lateral ligament, and separated from the ligament on the other aspects of the joint, from the inside, by sharp dissection, much as in the removal of a semilunar cartilage of the knee joint. The cartilage is greater in diameter from lateral to medial and is remarkably large for the size of the condyle of the mandible. Therefore, separation of the internal attachments, considering the immediate proximity of the internal maxillary artery, was accomplished with some difficulty. No sutures were placed in the divided capsule. There were no loose fragments to be found. The articular disc, instead of being biconcave with a very thin or fenestrated normal central portion, had a transverse ridge of thickened cartilage, probably resulting from hyperplasia following an old healed fracture.

The postoperative convalescence was surprisingly satisfactory. There was very little pain, moderate swelling of the whole facial region, but immediate increase in active range of motion of the jaw. This motion was more free and not as painful as it was prior to the operation. Gum chewing was carried out actively, beginning about the second day. At five days the mouth could be well opened, and convalescence was then rapid. Depression of the mandible was about normal at two months (fig. 1).

There was at first some limitation of anterior and lateral motions of the jaw which at eight months has disappeared. A fine crepitus appeared after a few weeks, no doubt from scar tissue formation. This is now only slight.

The rapidity of convalescence is quite typical of the recuperative power of this nonweight bearing joint, and probably partially due to the distance of the controlling muscles from the articulation itself.

CONCLUSIONS

1. The removal of the temporomandibular fibrocartilage is rarely necessary. Such a case is presented.
2. Although the operation is not anatomically an easy one to perform, the case reported recovered function rapidly.

POOLED CONVALESCENT SCARLET FEVER SERUM TREATMENT OF DIVERSE STREPTOCOCCIC INFECTIONS. In their experience with the routine use of pooled convalescent serum in scarlet fever William Thalheimer and Sidney O. Levinson, Chicago (Journal A.M.A., Sept. 14, 1935), had occasion to observe the beneficial effects of such therapy in late septic or complicated cases. Frequently there occurred diminution in fever, alleviation of toxemia and prostration, and cessation or regression of a steadily advancing infectious process. At times these changes followed rapidly and quite dramatically. It was these similarities and results that prompted them to try pooled scarlet fever convalescent serum for various streptococcic infections. Their report is based on a study of 122 patients. This group is made up of a large variety of streptococcic infections, all the patients having been severely ill, the infection not having yielded to other forms of therapy. Practically all the patients were treated with pooled convalescent scarlet fever serum, because of the general impression that the erysipelas serum was less effective, although in a few instances some benefit was reported with the use of the latter serum. Each pool was a mixture of the serum obtained from fifteen to thirty recently recovered adults. In 11 per cent of the cases treated there was a critical termination of the infection, with marked decrease in fever and prostration and cessation of the disease process. In 44 per cent there was a somewhat slower but nevertheless definite and progressive improvement leading to complete recovery. In 17 per cent the results were recorded as doubtful, for although the patients eventually recovered the evidence was not sufficiently clear to indicate what part the serum may have played. In the remaining 28 per cent no detectable improvement followed the use of serum and no effect was reported. The group diagnosed as "septic with septic complications" consisted of twenty-six patients, only eight of whom died, the other eighteen patients recovered. However, although all the patients with streptococcic meningitis and streptococcic endocarditis succumbed, the authors believe that early cases should not be denied treatment with extremely large amounts of convalescent scarlet fever serum, which might help in an occasional case. They conclude by stating that in evaluating pooled convalescent scarlet fever serum therapy of diverse progressive hemolytic streptococcus infections, which clinically are neither scarlet fever nor erysipelas, adequate consideration must be given to the type of cases. In their cases the infections were severe or fulminating, usually having a grave prognosis.

NORTHWEST MEDICINE

The Journal of the State Medical Associations of
Oregon, Washington and Idaho

Devoted to the Interests of the Medical Profession
of the Pacific Northwest

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OCTOBER, 1935

EDITORIAL

IDEAL PLAN FOR CARE OF DEPENDENTS

Hitherto the treatment of dependent illness in Washington has been in a chaotic and unsatisfactory condition. Individuals without financial resources who have been treated in their homes or doctors' offices have comprised the bulk of "charity patients" who have always formed a greater or less portion of everyone's practice. Methods of caring for these dependents have varied in different counties. In some the commissioners have appointed an individual or group of physicians to treat these cases of illness with no uniformity of compensation. In some of the large counties, as in King, for instance, which contains about one-third of the population of the state, no provision has been made for payment for medical services for this class of patients. The situation has been more than ever unsatisfactory since the federal government appropriated funds to compensate medical care and advantage of this has not been taken in many counties.

The last legislative session established the State Department of Public Welfare which has absorbed the various state social agencies, including old age pension, insurance for unemployables, the blind and dependent children. The problem has been often discussed as to the procedure which would be followed by this department in affording medical attention to these groups of citizens. There have been conferences between the director of the department and representatives of the State Medical Association to determine a just and equitable method of caring for them. The director expressed his desire to place this medical service in the hands of the medical profession, if satisfactory arrangements could be made. In order to attain this result the Washington State Medical Association delegated the matter to the State Medical Service Bureau, a department of the state association. The existence of this state bureau is for the purpose of coordinating the county medical service bureaus which are functioning in eleven counties. The arrangements finally reached provide that the funds to be ex-

pendent for the care of the state dependents shall be placed in the hands of the State Medical Bureau. To the Bureau was delegated the task of preparing rules and regulations for the execution of this plan with specifications for all the details to be promulgated. When these plans were eventually presented to the director of the State Department of Public Welfare they were accepted without change or qualification. This was a striking exhibition of confidence in the discretion and fairness of the medical bureau committee.

The main features of this plan can be briefly stated. Any legally qualified physician in the state of Washington shall be eligible to treat these patients. The provisions are prescribed for their applications and registrations with the constituted authorities. Their names will be listed and each patient may select the physician of his choice. Necessary rules are made governing patients in the methods of obtaining medical attention. Services will be limited to medical and obstetric care delivered to patients at their homes or at the doctors' offices. At the beginning this will be considered an emergency and not applicable to all forms of illness, the details of which will be duly outlined. Owing to limitation of funds for payment, attendance at the beginning will be confined to two weeks or ten visitations, further extension being provided when needed. When a case reaches a chronic stage medical attendance will ordinarily be limited to one visit per week.

Funds for payment of medical services will be obtained from federal appropriation, supplemented by state and county funds. The fee schedule adopted is that of the Department of Labor and Industries which has been accepted as a reasonable one. It is stated, however, that payments may at times be less than these sums, depending upon the amounts available each month and the total of bills presented by the attending physicians. The established fee for labor cases at the patients' homes is \$30, including prenatal and postnatal services, these fees, likewise, being subject to limitations dependent upon the total money available each month. In counties having medical service bureaus, execution of the plan will be given to them. Elsewhere supervision will be entrusted to officials of the county medical societies.

It is obvious from the above statements that no physicians can anticipate large revenues in the care of these dependent patients, but the outstanding fact is that they will be paid something for their services which will be uniform in all sections of

the state. The unique and distinguishing feature of the whole plan is that hereafter in Washington the state care of patients without financial resources will be in the hands of the medical profession without lay control or interference. The date for inaugurating this system was set for October 1. Its successful administration and continuation for the future will depend upon the cooperation and support given by members of the medical profession. Letters were directed to all legal practitioners of the state urging them to exercise discretion in treatment and prescriptions for drugs, so that in both respects there shall not be undue expense in giving necessary attention to the patients. This plan of treatment will be watched with interest in all parts of the country and it is hoped that its administration will be such as to bring credit to all connected with it.

A DISGRACEFUL SMALLPOX RECORD

When one considers that smallpox has been practically eliminated from some European countries and that one eastern city of the United States, with a population of over eight hundred thousand, has not had a single case of smallpox in the past six years, the present disgraceful situation in Washington concerning this disease is most striking. E. R. Coffey, State Director of Health, announces that so far this year one thousand and fourteen cases have been reported in this state, being approximately one-fifth of all cases reported in the United States during the same period. During 1933 there were two hundred eighty-eight cases reported, with an increase to five hundred eighty during 1934, while the above extraordinary figure has appeared during nine months of this year. One can easily estimate the probable increase during the following three months of the year.

The explanation of the situation is known to everyone. Since it has been repeatedly demonstrated and proven that universal vaccination will eliminate smallpox, the failure to enforce this procedure is responsible for the situation in this state. The State Department of Health is enlisting the aid of local health offices, public health nurses and civic organizations in a campaign to banish smallpox from this state. This movement can be accelerated, if wide publicity is given to the situation as it exists at present. In addition to the hostility to vaccination on the part of certain cults and religious organizations, public indifference is a large factor in producing the increase of this preventable disease.

Physicians of the state, if interested in a campaign of education among their patients and friends, can accomplish very much in helping to eradicate this disease.

SEASIDE ANNUAL MEETING

Last month's annual meeting of Oregon State Medical Society at Gearhart was unusual in its setting on the ocean beach with consequent attractions which are never possible at an inland city. The meeting being scheduled at the end of the summer season, the society had the hotel for its exclusive use as well as the nearby Ocean Hotel which was devoted particularly to meetings of the ladies and Woman's Auxiliary. The public golf course being located across the road from the hotel was most conveniently adapted for the use of the golf enthusiasts who took full advantage of the opportunity it offered. While the attendance was not as large as at some meetings, more than one hundred fifty registered, which was considered quite satisfactory considering the distance from most parts of the state.

As is customary with the Oregon Society, the program was devoted exclusively to papers by its members except two each from two visitors. Dr. Hans Lissner of San Francisco had large and attentive audiences, while he gave a dramatic portrayal of amazing examples of endocrine abnormalities. The results of tumors of the adrenal cortex were demonstrated by well illustrated case reports of remarkable abnormal sexual developments. Dr. Hubbard T. Buckner of Seattle gave papers on fractures of elbow and spine in language and descriptions suitable to general practitioners rather than orthopedists, since the former comprised most of the audience and they treat most fractures. These features made pleasing impressions on the Oregon physicians who welcomed the speakers personally and the messages offered by their papers. The program of papers from the society members covered a wide range of subjects. They were well prepared and ably presented, following the rule which always prevails with members of this society.

The business affairs of the organization were considered at three meetings of the House of Delegates in connection with breakfasts. Each day there was an assemblage of about sixty members, including Delegates and those interested in the proceedings. A topic uppermost in the minds of all was the establishment of a plan for extending medical care to state dependents in cases of illness. A report was

made on the prolonged and faithful negotiation of the committee having this matter in hand, with a statement of the arrangement perfected. The report from this committee will be published later. A spirit of good will and harmonious relations among the Oregon profession was noticeable at this meeting. There appears to be a united spirit in meeting the present day medical problems among the Oregon physicians.

The activities and support from the Woman's Auxiliary are important features of modern medical practice. This organization is an active and vigorous body in this state. The ladies and their activities were concentrated at the Ocean Hotel, where they had daily programs featuring reports from various committees showing the interest and activities during the past year. There were rumors of much jollity and some unique forms of entertainment witnessed only by feminine observers.

The chief social event was the banquet of the second evening, in which the doctors and their wives freely participated. Under the skillful direction of President Webster, a program was enacted in which were introduced various officials who have been active in carrying on the society's affairs during the past year. Special honor was given to Dr. Alfred Kinney whose years of practice have covered sixty-three years, making him the oldest practitioner in the society. Functioning both as the first and fiftieth president, he has continued as a practitioner eleven years since the last of the events. It was the consensus of opinion that this was one of the most pleasing and successful meetings in the history of the state society.

AN EDUCATIONAL ANNUAL MEETING

The forty-third annual meeting of Idaho State Medical Association at Boise last month presented a radical departure from the traditional state association meeting, no member of the organization appearing on the program. It was decided to inaugurate a week's postgraduate course of lectures, the lecturers being members of the faculty of the medical department of Northwestern University, each of whom delivered a daily lecture. The efficiency of the program was augmented by correlation of the subject matter. Thus, L. A. Crandall, Jr., Associate Professor of Physiology and Pharmacology, presented physiology of the stomach, large and small intestines with application to ulcer, pylorospasm, intestinal obstruction and spastic colon. This was followed by W. H. Holmes, Pro-

fessor of Medicine, who discussed medical management of peptic ulcer, while J. A. Wolfer, Associate Professor of Surgery, presented its surgical management. Likewise, G. H. Gardner, Associate Professor of Gynecology, and W. R. Cuffins, Associate Professor of Surgery, participated in the daily programs. Each day's topics were approached in this manner, giving the auditors a comprehensive and compact outline of the newer teaching in Northwestern University. At the noon hour each day there were roundtable discussions by each of the lecturers, where intimate personal contact was available with more detailed discussions of the subject matter of the lectures.

That the physicians of Idaho and adjacent states appreciated the unusual opportunity offered at this meeting was shown by the registration of one hundred and fifty, including visitors from Montana, Oregon and Washington. The success of this unusual meeting was due primarily to the energy of President Charles R. Scott who was indefatigable during the past year in arranging for the meeting and popularizing it among the profession of the state. An interesting feature of the meeting was the establishment by the House of Delegates of a \$7000 trust fund for the development of better meetings. The Councilors will administer the fund under bond.

The chief social event of the meeting was the banquet and dinner dance at beautiful Boise Hotel which was largely attended. Dr. Scott delivered an able address on the ideals and aims of medicine in relation to the widely discussed subject of socialized medicine. J. Tate Mason, president-elect of American Medical Association, described the history of that organization and its problems. The principal speaker of the evening was United States Senator William Borah, who delivered a powerful address attacking overcentralization of government. He also discussed the Senate resolution passed during its closing hours to insure against American participation in foreign wars. Considering the various features and incidences of this meeting it was recognized as one of the most outstanding and memorable in the history of the Idaho association.

The President for the coming year will be J. H. Crampton of Lewiston and the annual meeting will be held again at Boise.



MEDICAL NOTES

OREGON

CONFERENCE OF HEALTH OFFICERS. The annual conference of city and county health officers of Oregon was held in Portland, September 16-18. This conference serves as a clearing house for the exchange of information concerning public health problems and application of improved methods of disease prevention. Oregon statutes make attendance compulsory for city and county health authorities. Accordingly there was a full attendance at this meeting.

LANE COUNTY MEDICAL SOCIETY held a meeting at Osburn Hotel, Eugene, September 12. After transaction of business of the society, a paper was presented by W. H. Dale of Eugene on "Medical and Surgical Clinics and Practices in European Countries." Dr. Dale has just returned from a European trip under the auspices of the Interstate Postgraduate Association of America.

BERNARD G. BARKWILL, who has practiced for a number of years at Ashland, has left that city for Philadelphia, where he will follow postgraduate studies in ophthalmology. On his return he will locate in Portland, where he will be connected with ophthalmology in Multnomah County Hospital and Portland Free Dispensary.

R. L. STRICKLAND, who has practiced for the past six years at Tillamook, has moved to Oregon City. He will there be associated in practice with his brother, Graeme Strickland.

WILLIAM W. ABBOTT, who has for many years been in private practice and with the United States Army, has located at Long Creek, going there from Portland.

R. I. HALL, who has practiced for some time at Klamath Falls, has located at Veronica where he practiced some years ago.

WASHINGTON

ADDITION TO HOSPITAL. Olympic Hospital at Bremerton is being enlarged by the construction of an eight-bed addition. Also the hospital is being covered with stucco, the total cost of improvements amounting to \$4500. It is stated that next year an entire new wing will be added to the institution.

HOSPITAL LEASED. Valley Hospital at Puyallup has been leased to Miss Martha Lee as superintendent. The hospital has been renovated and new equipment installed.

HOSPITAL CLOSED. Stanwood General Hospital has been closed. J. Ellery Fales, who has been in charge of it for the past three years, has left the city and gone to Canada.

R. L. HOWARD, who was formerly instructor in dermatology at Western Reserve Medical School, Cleveland, Ohio, has located for practice at Spokane, where he will be associated with J. C. Hathaway, specializing in dermatology and syphilology.

SOL LEVINSON, a native of Seattle, graduated from University of Washington and later received his medical degree from University of Colorado Medical College. After interning in New York hospitals, he has returned to Seattle and located for practice.

R. W. MAURER, recently from Detroit, Mich., has been

appointed attending physician for the Bureau of Indian Affairs at Metlakatla, Alaska. This locality has been without a doctor for nearly a year.

ELECTED TO OFFICE. At the annual meeting of American Academy of Ophthalmology and Otolaryngology at St. Louis Carroll L. Smith of Spokane was elected third vice president.

LAWRENCE W. QUAIFE, graduate of Washington State College and Rush Medical College of University of Chicago, served as interns in obstetrics at Chicago Maternity Center and at Deaconess Hospital. He is located for practice in Spokane where he will be associated with J. M. Gunning.

MELVIN A. DRAKE, who has practiced for two years at Goldendale, Wash., has moved to Buhl. Although he was recently appointed county health officer, he decided to leave Washington and locate in Idaho.

S. M. POINDEXTER, graduate of University of Oregon Medical School, who has recently served as interne at King County Hospital, Seattle, has located for practice at Puyallup.

F. A. LONGAKER of Olympia was found not guilty of official misconduct as mayor of the city. It was charged that the city, under his direction, had entered into a contract with a clinic of which he was a member.

C. B. HOFFMAN of Kent has returned home after an absence of six months, during which he traveled in Europe and followed medical studies in Vienna.

WILLIAM DIETZ, who has practiced for some time in Tacoma, has moved to Spokane where he will continue practicing his specialty of neuropsychiatry.

HENRY ODLAND of Seattle has gone to Europe for a prolonged period of travel and study. He will visit various medical centers.

WEDDING. Laurence McNerthney of Tacoma was married in that city, August 24, to Dr. Mary C. Fochtman of Cozad, Neb. The doctor will continue practice in Tacoma.

IDAHO

HOSPITAL SOLD. Spirit Lake Hospital has been purchased by Clifford M. Schmidt who has been in practice for a number of years at Clearlake, Utah. He will take the practice of J. W. Schori who has had charge of the hospital for the past five years and who has gone east for postgraduate study.

INFIRMARY PROPOSED. At Lewiston Normal School it is proposed to construct a modern infirmary at a cost of about \$1000. It will be 20 by 50 feet in dimension with adequate facilities for such an institution. It is expected construction will begin in the near future.

APPOINTED COUNTY PHYSICIAN. Fayre H. Kenagy of Rupert has been appointed county physician and health officer of Minidoka county. He fills the unexpired term of Charles A. Terhune who resigned on account of changing his residence. Dr. Kenagy has twice before served the county in this capacity.

E. G. REUTER, graduate of University of Oregon Medical School, has recently been resident in surgery at Columbus Hospital, Seattle. He has located for practice in St. Maries where he will be associated with O. D. Platt at the Platt Hospital.

WEDDING. Sheldon C. Bajema of Wallace was married to Miss Lois Horton of Bonners Ferry in the latter city, August 21. Dr. Bajema is connected with the Wallace Hospital.

OBITUARIES

DR. FRED L. NEELY of Shelton, Wash., died in Olympia September 12, as a result of brain injuries from a four story fall from a hotel window, aged 50 years. He was born in Dorchester, Ontario, Canada, in 1885. He obtained his medical degree from University of Western Ontario Medical School in 1908. At the beginning of the World War he enlisted in the Canadian Army, serving overseas for three years. Having specialized in psychiatry he was in charge of mental cases in London hospitals. He returned to Canada and shortly afterward took a position at Eastern State Hospital at Medical Lake. In 1924 he moved to Shelton, taking the general practice of N. E. Roberts. Later he practiced in conjunction with A. C. Linkletter. He was held in high esteem by fellow practitioners and many other friends and patients.

DR. ROBERT S. DINSMORE of Spokane, Wash., died August 28, aged 81 years. He was born at Washington, Iowa, in 1853. He received his medical degree from College of Physicians and Surgeons of Keokuk, Iowa, in 1878. He located at Troy, Kas., where he practiced for fifty years. Twelve years ago he retired and lived with relatives at Walla Walla. He had an active part in some of the exciting experiences of pioneer days in Iowa. In spite of his advanced age he was an excellent trap shooter.

DR. E. H. SARGENT of Coupeville, Wash., died September 16, aged 72 years, from disease of the heart. He was born in Medina, Ohio, in 1863 and obtained his medical degree from Cornell University Medical School. He practiced in Detroit for a number of years and later became instructor in the Army Medical School at Orchard Lake. In 1904 he came to Whidby Island and was located with the rank of colonel as the first surgeon in Fort Casey. On retirement from active practice he made his home near Coupeville. During his thirty-one years of residence in that section he made many friends and admirers.

DR. GEORGE H. COFFIN of Longview, Wash., died September 10, after a brief illness from heart disease, aged 56 years. He was born in Minnesota in 1879. He received his medical degree from Minneapolis College of Physicians and Surgeons in 1904. He practiced at Drake, N. D., and Bonners Ferry, Ida. He located for practice at Longview in 1923. For several years he served as city physician.

DR. WILLIARD D. ARNOLD of Spokane, Wash., died September 17 after a long illness, aged 63 years. He was born in Illinois in 1871. He obtained his medical degree from Rush Medical College of University of Chicago in 1895. He practiced in Spokane for the past twenty years.

OREGON BASIC SCIENCE EXAMINATION

Will be held at Room B, Main Library, Portland, Nov. 16. Subjects are anatomy, physiology, pathology, chemistry, and hygiene. For application blanks and general instructions write to Charles D. Byrne, Secretary, Eugene, Ore., not later than October 30.

REPORTS OF SOCIETY MEETINGS

WASHINGTON STATE MEDICAL ASSOCIATION

MINUTES OF THE FORTY-SIXTH ANNUAL MEETING OF WASHINGTON STATE MEDICAL ASSOCIATION EVERETT, WASHINGTON, AUGUST 13-14, 1935

The forty-sixth annual meeting of Washington State Medical Association was held at Masonic Temple, Everett, Wash., August 13, 1935.

BOARD OF TRUSTEES

Tuesday, August 13

A meeting of the Board of Trustees was called to order at 8:30 a.m. by the President, Nathan L. Thompson. On calling the roll a quorum was found to be present, with the following Trustees answering the roll call: C. L. Smith, N. L. Thompson, A. Betts, J. E. Bittner, Jr., A. E. Gerhardt, G. H. Anderson, H. E. Rhodehamel, H. O. Wright, A. C. Crookall, E. C. Leach, J. T. Rooks, V. W. Spickard, C. H. Thomson.

The minutes of the previous meeting of the Board of Trustees were read by the Secretary-Treasurer and upon motion duly made and seconded were approved.

The death of A. O. Loe of Seattle having left a vacancy in the Board of Trustees, on motion duly made and seconded, C. W. Sharples was unanimously elected to fill said vacancy for the balance of the term.

C. W. Sharples of Seattle gave a report of the Finance Committee and on motions duly made and seconded the recommendations therein were approved.

On motion it was voted to adjourn to meet with the House of Delegates at 9 a.m.

HOUSE OF DELEGATES

FIRST SESSION

Tuesday, August 13

A meeting of the House of Delegates was called to order at 9 a.m. by President Nathan L. Thompson. On calling the roll a quorum was found to be present, with the following Delegates answering to roll call: R. S. Mitchell, H. D. Fritz, A. J. Bowles, C. E. Watts, A. L. Balle, F. J. Clancy, F. Slyfield, L. G. Steck, F. W. Anderson, W. D. Read, C. E. Kjos, D. H. Lewis, C. R. Mowery, B. N. Collier, J. R. Morrison, H. S. Atwood, J. B. Blair, M. F. Graham, E. W. Young, G. R. Marshall, B. T. King, T. Morcom, D. V. Ogievsky, L. S. Dewey, W. G. Cameron, W. B. Penney, C. L. Hoeftler, J. G. Mathews, F. Patton, E. J. Rhoades, J. E. Purcel, D. F. Bice.

Motion was made and adopted to accept the minutes of the meeting as published in NORTHWEST MEDICINE.

The Secretary-Treasurer presented the last audit of his accounts and it was accepted and ordered published in the Journal. The abstract of audit was as follows:

Secretary-Treasurer's Report

ABSTRACT OF AUDIT

General Fund

Balance 1-1-34	\$ 642.28
Receipts 1934	\$6,620.30
Disbursements 1934	4,843.62
Balance 1-1-35	\$ 2,418.96
Expenditures	
Board of Trustees	\$ 502.56
Annual Meeting	503.05
Economic Committee	341.58
Social Hygiene Committee	34.31

Cancer Committee	194.51
Insurance Committee	20.00
Hospital Survey Committee.....	15.30
Legislative Committee	29.23
Office of Secretary	1,045.00
Office of President.....	115.69
Delegates to A. M. A.	244.85
Audit	170.00
Printing and Postage.....	85.70
Reporting	31.25
Bond	5.00
Long Distance Phones.....	6.10
Flowers (Mr. Cannon).....	10.00
Tax on Checks and Safety Box.....	7.84
Refund of Dues	5.00
A. M. A. Directory.....	12.50
Official Journal	1,491.00

Defense Fund

Balance 1-1-34	\$28,282.42
Receipts 1934	\$5,868.38
Disbursements 1934	3,290.32
Balance 1-1-1935	\$30,860.48

Expenditures

Office of Secretary.....	\$ 856.25
Bond	75.00
Audit	150.00
Printing and Postage.....	123.55
Tax on Checks.....	1.14
Office Supplies	.75
Board of Governors.....	69.75
Legal Expenses	2,013.88

General Fund

Balance 1-1-35	\$ 2,418.96
Receipts 6-30-35	\$5,207.52
Disbursements 6-30-35	3,199.47
Balance 6-30-35	\$ 4,427.01

Expenditures

Board of Trustees.....	\$ 65.20
Official Journal	1,881.00
Office of President.....	307.87
Public Relations Committee.....	211.25
By-Laws Committee	7.53
Office of Secretary.....	420.00
Neoplastic Committee	100.00
Printing, Postage, etc.....	121.05
Tax on Checks.....	.57
Semi-Annual Audit	75.00
Bond	5.00
Refund on Dues.....	5.00

Defense Fund

Balance 1-1-35	\$30,860.48
Receipts 6-30-35	\$3,197.77
Disbursements 6-30-35	2,212.78
Balance 6-30-35	\$31,845.44

Expenditures

Office of Secretary.....	\$ 450.00
Printing, Postage, etc.....	41.17
Bond	75.00
Semi-Annual Audit	75.00
Safety Deposit Box and Tax on Checks.....	4.50
Legal Expenses	1,547.11
Refund on Subscriptions.....	20.00

By order of the Board of Trustees,

CURTIS H. THOMSON, Secretary-Treasurer.

REPORTS

Motion was duly made and adopted to have the reading of the committee reports dispensed with and to have them published with the minutes in *NORTHWEST MEDICINE*.

Report of Cardiovascular Renal Committee

It has been the opinion of the Cardiovascular Renal Committee that more good could be accomplished by improving the knowledge of the profession in these disorders than by an effort to educate the public. Accordingly, programs covering these subjects have been put on and others

arranged for in the fall at the meetings of some of the societies.

Because of the difficulty in getting a committee that is spread over the entire State to function, I would suggest that the entire committee come from one community so that meetings can be held. Suggestions and information to the Society can then be disseminated from that point.

GEORGE H. ANDERSON,
Chairman.

Report of Committee on Child Welfare and Infant Mortality

Your committee again attempted to encourage and assist county societies in the presentation of at least one pediatric program during the year, stressing preventive measures particularly. While there have been incomplete reports from societies, it is believed something was accomplished.

Washington stands in an enviable position in regard to infant mortality, the rate 38.77 per thousand live births in 1933 being the lowest of all the states. The urban rate was 35.72 and the rural rate was 43.49. Figures for 1934 are not available. By comparison, the infant death rate in the Federal Registration Area for 1933 was 58.2 per thousand live births. While this is a gratifying condition, statistics show that there are still many deaths due to preventable causes. A very notable contribution to infant deaths is premature births; 35.2 per cent of all deaths under one year were among those born prematurely. Any measures tending to reduce the large percentage of premature births will reduce the infant death rate.

Valuable educational work was carried on during the past year by Albert S. McCown, Director of Child Hygiene of the State Health Department, through funds allocated by the Washington Emergency Relief Administration. During the year Dr. McCown examined 3,000 children in the rural districts and addressed many groups of parents. His figures show that 65 per cent of the children examined had some type of defect.

The smallpox rate in the state is disgracefully high. Fortunately, it continues to be mild in character. There has been a gratifying reduction in the incidence of diphtheria. The use of the one dose alum toxoid is recommended because of its efficiency, simplicity and low cost.

Your committee wishes to make a plea for increased use of preventive health measures by all doctors of the state. Immunizing procedures should be done in the doctors' offices and not in clinics or schools; and the doctors should receive reasonable compensation for this service.

The figures given in this report are from the Division of Vital Statistics of the State Department of Health.

DARCY M. DAYTON,
Chairman.

Report of Committee For Conservation of Vision For the Year 1935

Program of this Committee for the past year may be divided into two parts, that pertaining to professional service and educational. Ophthalmologists have always given freely of their time to those unfortunates standing in the need of professional services, whether it be for removal of senile cataract, or refraction and help in securing glasses for needy children or others. There has been plenty of opportunity for this type of service during the past few years of economic stress, and practically every community in the State has had and is now having the aid of trained oculists, whenever groups such as Parent Teachers' Associations, Red Cross, Welfare Boards or the Elks Lodge ask for them, regardless of whether part compensation or none is offered.

The educational division of our program for the year has been a continuance of arranging for and giving talks or lectures before groups and service clubs. In addition to this, acting upon the suggestion of President Thompson, programs for county societies, when and where convenient and desirable, were offered and put on. This idea was carried out with a measure of success and the committee recommends that this be a part of the program to be tried in a more extensive manner in the future. The scope of this work might readily be enlarged to include radio programs.

We feel such a feature would reach many who are interested, and the entire absence of any advertising feature would do much to make the public feel it is something worthwhile.

The suggestion made by one of the members of our Committee that it would seem wise to have examinations made by eye-physicians rather than by optometrists in case an automobile driver's license is in question. The reason for this, of course, is obvious and the Committee feels this is an excellent suggestion. It seems rather strange that this has not been brought forward before. We hope that in the near future this may be followed by some constructive work and that something can be accomplished along this line.

As the work done by this Committee has always been in the nature of individual endeavor rather than collective, we feel it might be well to enlarge the Committee to be made up of at least ten members, appointing one for each community of 10,000 or more population. In this way each portion of the State will be taken care of and the work would not all be done in the larger communities and the smaller ones neglected. This is merely a suggestion which may or may not be worth considering.

C. LOUIS HOEFFLER,
Chairman.

Report of Committee on Drug Addiction

The outstanding accomplishment of your Committee on Drug Addiction for the past year was the final passage through the Legislature, and the signing by the Governor, of the Bill enabling the State to establish an institution for the treatment of narcotic addicts. In this we were aided by several other organizations, notably the American White Cross and the Federal Narcotic Bureau. This hospital has already been started, the patients at first to be taken care of at the Northern State Hospital at Sedro-Woolley. They may either apply voluntarily, in which case they or their families stand the subsistence cost, or they may be committed from any county in the state, in which case the county bears the expense. It is planned ultimately that a farm be procured, where the patients, after their hospital treatment is over, may be kept under strict supervision as long as may be deemed necessary to completely rehabilitate them, after which they will be paroled for a period of several years.

In accomplishing this end, members of the Committee appeared several times before both Senate and House Committees, and throughout the year numerous talks were made before civic and community clubs, P.-T. A. groups, etc., in order that the public generally might be informed of the worthy object we were desirous of attaining.

The second project of the Committee, that of limiting the prescribing and distributing of barbitol and its derivatives only to prescription by legally qualified practitioners of medicine, was presented in the House by Dr. Bice of Yakima and had the support of all the medical members of both houses of the Legislature. Its final passage was made impossible by the severe legislative jam which occurred at the end of the session.

The third measure of interest to your Committee, the Uniform Narcotic Bill, was not pressed particularly, as we wished to center our efforts on the previously described bills, and it was the feeling of the members of the committee that this State was quite satisfactorily served by the present time tried Beeler Bill.

As Chairman, I personally wish to commend the thorough cooperation and assiduity of the members of this committee, and also to call attention to the fact that it was unnecessary to call upon the State Society for any expense money for the work of the Committee.

In laying down the work at this time your Committee wishes to thank the medical members of the Legislature for their cooperation, and also to express our appreciation to many other members of the Society for their interest and their assistance in our work. It is to be hoped that the campaign of public interest, which we have inaugurated in a small way, will be amplified by our successors, so that in the future the Barbitol Control Bill may be passed as a result

of pressure from the general public and that the profession may be recognized for their unselfish interest in the projected rehabilitation of at least a small proportion of the addicts in this State.

JAMES E. HUNTER,
Chairman.

Report of Economics Committee

The Economics Committee was organized and has been conducted as a deliberative body. Its objects have been: (1) a study of socioeconomic facts that are related to the practice of medicine; (2) an analysis of alleged shortcomings in the present system of practice; and (3) the development of an administrative system of practice that will meet present day needs.

The length and the breadth of these objectives was fully appreciated by this committee, and it became apparent almost from the start that something more than conversation would be needed for sound conclusions. A program of study was developed but could not be carried forward because the committee was not properly understood and financial support was not given.

In the fall of 1933, Pierce County was fortunate in obtaining financial support, however, and has been able to carry out precisely the same program of study that had been outlined by the Committee of Seven, except that this study was limited to the County of Pierce. The Pierce County study taxed the time and energy of the Pierce County members. The other members, largely because of lack of funds, were unable to inaugurate other studies, and decided to limit their activities to cooperation in the Pierce County study. They accord full credit for securing financial resources and for prosecution of the work to the Pierce County members.

Failing in a state-wide study, the Economics Committee is pleased to report that there is good prospect of state-wide benefits from the unit of population study that is now progressing in Tacoma.

H. J. WHITACRE,
Chairman.

Report of Hospital Service Committee

The duties of this committee have been to act as an official means of contact in matters of hospital activities between the organized medical profession of this state as represented by the Washington State Medical Association and the Council on Medical Education and Hospitals of the American Medical Association, Division of Hospital Activities of the American College of Surgeons, Washington State Hospital Conference, Western Hospital Association, various national hospital associations and any other organizations or individuals interested in hospital activities. It assembles and maintains certain statistical data regarding hospitals for use by the State Association for legislative or other purposes. It assists hospitals throughout the state upon request whenever possible.

For the purpose of performing these duties most effectively the state has for many years been divided into thirteen districts with one or more committee members in each district. Attempts were made during past years to hold meetings of the entire committee but they resulted in such poor attendance, because of the necessarily widely scattered membership, that they were abandoned and the work of the committee has been carried on by correspondence. This has been greatly facilitated by the fact that there has not been a great deal of change in the committee membership from year to year, thus permitting the committeemen in each district to become familiar with local hospital conditions and to answer the occasional questions which from time to time may be referred to him. The plan of carrying on committee activities as largely as possible by correspondence has also definite financial advantage both to the State Association and to the individuals concerned.

The committee functions easily and well and it is recommended that because of long familiarity of the members with the work, the custom of previous years of reappointing a majority of the membership be continued. It is also suggested that whenever feasible the committeeman residing

in the same city as the president of the State Association act as chairman.

HERBERT E. COE,
Chairman.

Report of Maternal Care Committee

The year 1934-1935 has been of such short duration that even attempts at accomplishments have perforce amounted to little more than surveys of the state's maternity situation. Attention is directed to the full, adequate and convincing state statistics arranged by the Maternal Welfare Committee last year. Unfortunately your chairman's notification to serve was unavoidably delayed till the middle of January, allowing merely six months in which to make plans, arrange committee meetings and report activities. Under the present regime, all committees are more or less similarly handicapped. This in large measure could be obviated by the system of nominating a President-elect who would have his set-up complete and in running order for the day he assumes office.

Another phase is made emphatic by reason of requests received from Dr. Adair of the National Maternal Welfare Committee. Only a promise of cooperation could be forwarded him, nor can much more be done any year since a committee is so short lived. It would appear that some scheme of dovetailing of committee membership should be extended from year to year in order that a certain solidarity of purpose in the state and more intelligent cooperation with the National Maternal Organization should be observed.

Two interesting meetings of this committee have been held. The following points have come up for discussion:

1. Dissemination of obstetric information: (a) Urging county societies to put more obstetrics on their programs. (b) Revive the Seattle Obstetric Society. (c) Interest the surgical societies of the various cities to have at least a small place for obstetrics on their programs, an excellent example of which was that of the Tacoma Surgical Society. (d) Urge that each year the state program should include at least one paper on maternity welfare.

2. The fact that the average practitioner, although recognizing he is incapable of doing major surgery, still feels amply able to tackle any kind of obstetric problem and go through it somehow.

3. As a means to put obstetrics on a higher level and bring its technic in a practical way to general notice of the men throughout the State, using the county organization as a medium. It was quite earnestly discussed that the state society purchase a manikin—suggesting a method of purchase—to be kept in the central office, available at all times for the purpose of demonstrations at county meetings. At the request of the committee, all county societies of the State were made acquainted with this scheme. Apparently, to date, two months later, not a letter ever reached its destination, with one exception, and the Secretary of that organization informed us politely but firmly that they were not interested.

The lethargic indifference of the individualistic physician as a whole is discouraging, but the Association within the Committee this year has been provocative of thought, exchange of ideas, and an extension of friendship which I feel will make 1935 memorable.

HENRY H. SKINNER,
Chairman.

Report of Neoplastic Committee

In January, 1933, this committee formulated a five year program which was accepted by the Board of Trustees of the Washington State Medical Association as presented. The plan consisted of two major parts:

1. The preparation of articles on angioma, carcinoma and sarcoma of various parts of the body, emphasizing early diagnosis, biopsy and selection of radium, roentgen ray or surgery as therapy. These papers to be distributed to the State members or published in NORTHWEST MEDICINE.

2. On completion of the above, the next step would be to engage the services of the American Society for the Control of Cancer to conduct a state-wide educational campaign for the public. This organization is well equipped to

perform this task. They have done it for other state medical associations, and are willing to repeat it here at no charge to us.

In 1933 the preliminary report of the Committee was generously paid for by the Public Health League. It contained the completed subject of "Angioma," also articles on "Cancer of the Breast," and "Cancer of the Uterus and Ovaries."

Dale Martin of Tacoma passed away since our first report. His untimely death created a vacancy on the Committee and Carrol Smith, President of the Washington State Medical Association, filled his vacancy by appointing Alfred Balle of Seattle.

Our 1934 report included the subjects of "Radiology," "Genitourinary Tumors," "Tumors of the Eyeball," "Tumors of the Nose and Throat" and "Tumors of Bone, including the Jaw."

A copy of the above reports, 1933 and 1934, were either presented to members of the State Association or mailed to their address.

J. Edgar of Spokane and Earl Gilley of Bellingham were added to the personnel of the Committee this year.

The cost of this report, 1933, was paid for by the Washington State Medical Association and the American Society for the Control of Cancer jointly, each paying fifty per cent of the expenses. The report includes the following subjects: "Cancer of the Skin," "Cancer of the Lip," "Intraoral Cancer," "Therapy of the Neck for Lip and Intraoral Cancer," "Cancer of the Gastrointestinal Tract," "Sarcoma of Soft Tissues," "Melanoma" and "Grading of Tumors."

This report represents the final step toward the completion of the first portion of the five-year program started in 1933. The Committee will proceed with the second phase of the work, namely, a state-wide educational campaign for the public, as soon as the work can be properly outlined and the personnel organized. The American Society for the Control of Cancer has promised us their experienced

The Cancer Commission of the California Medical Association kindly loaned to this Committee reports which they have compiled on cancer. Some of the material contained in our reports was obtained from that source.

DONALD V. TRUEBLOOD,
Chairman.

Report of Thyroid Committee

A survey was made of nine of the more populous counties of the State to determine to what extent the prophylactic use of iodine was being carried out in the public schools. Reports from the members of the committee investigating the different counties were as follows:

Yakima: Dr. West reports interest in prophylaxis dying out.

Spokane: Dr. Gilpatrick reports no prophylaxis by County Health Department. If symptoms of goiter are found, a letter is written urging the parents to take the child to the family physician.

Snohomish: Dr. Thomle reports about 10 per cent are receiving prophylactic treatment. Suspected cases are asked to see the family physician.

Pierce: Dr. Mattson reports there is no goiter prophylaxis carried out in the schools.

Grays Harbor: Dr. Bowles reports that nothing has been done in the way of prophylaxis for several years.

King County: Dr. King reports there is no prophylaxis among the school children.

Walla Walla: Dr. Ingram reports that the health department does not advocate the use of iodine in the schools but leaves it to the discretion of the attending physician.

Whatcom: Dr. Smith reports that interest has waned in the prophylactic use of iodine in the schools.

Chelan: Dr. Congdon reports there is no supervised goiter prophylaxis. What is carried out is at the suggestion of the family physician. In Chelan County iodized salt is used by approximately 93 per cent of the people.

Thus it appears that there is no systematic application of goiter prophylaxis in the schools of the State. What prophylaxis is carried out is in the hands of the general practitioners.

Your goiter committee two years ago reported marked diminution in the number of cases of goiter operated upon

in the principal hospitals throughout the State, a decrease in number much greater than that seen in operations for other surgical conditions. There is reason to believe that the lessened incidence of goiter among school children following the prophylactic use of iodine has continued, this in face of the fact that the former enthusiasm for iodine prophylaxis has waned.

Some of the members of the committee believe that the use of iodized salt in the homes is sufficient protection for the children. Investigation shows that in some communities iodized salt is used in 90 per cent of the homes.

In this connection the recent article on the prevention of endemic goiter by David Marine is of interest. In speaking of the use of iodized salt Marine states: "I myself feel that addition of 10 mg. of potassium iodide per kilogram (1-100,000), because it takes care of a wider range of iodine deficiencies with no appreciable greater risk, is the concentration to be preferred."

The general adoption of the use of iodized salt by the public has apparently taken the place of the original prophylactic measures used in the schools. This has some support by good medical authority.

We feel that a later survey of the school children to determine whether the incidence of goiter remains at its present lower level would be in order.

RUSSELL T. CONGDON,
Chairman.

Report of Respiratory Committee

There has been no significant increase in knowledge of respiratory diseases during the past year so that any report on this would be useless. However, there seems to be a tendency to more extensive use of vaccine for the prevention and cure of colds, without any more definite findings to justify such use.

It seems to be generally agreed that the germs found in the respiratory tract, both in health and in disease, are not the cause of colds. The opinion that at least many colds are due to a filterable virus seems to be gaining ground. If the germs that are given in vaccine are not the cause of the colds, it would seem axiomatic that one could not expect much immunity from their use. There are few, if any, who have carefully investigated, who believe that vaccines do prevent colds. However, some think that they do, to some extent, prevent the respiratory diseases that come with or following colds. If this is true, vaccines deserve more use than at present.

More definite evidence on this might be secured by giving vaccine to one-half the people in a state institution and keeping records of the complications over a considerable period of time, or it might be done in an industrial plant, or the State Medical Association might send out vaccines to carefully selected physicians in different parts of the state, some containing the usual bacteria, others bacteria-free, and have the physicians report upon the result without knowing whether or not the "vaccine" contained bacteria. This would evidently do away with any personal bias. We believe this a piece of work that might well be undertaken by the State Medical Association.

W. S. GRISWOLD,
Chairman.

Report of Industrial Accident Committee

As there seemed to be little need for any special work on the part of the committee this year, no regular meeting was held. But I have talked to several members individually, and corresponded with the others on various questions. We feel that the relations between the Department of Labor and Industries and the profession have been very satisfactory and that they are doing their utmost to cooperate with us.

The matter of the five per cent discount which the Department of Labor and Industries deducts in all industrial cases was again considered and we have been assured by the heads of the Department that they hope to restore it some time this year. However, it is impossible for them to be definite as to the time because of the strike in the lumber industry, which means thousands of men out of em-

ployment and quite a decrease in the contributions to the medical aid funds.

I have consulted with Dr. Eugene Allen, Medical Director, of the Department, on numerous occasions and he has been very helpful in committee work. There has been considerable dissatisfaction among the profession on the East side of the State as to the manner of distribution and handling of the Industrial work.

SIDNEY S. OPPENHEIMER,
Chairman.

Report of Public Relations Committee

A meeting of the Public Relations Committee was held in Seattle on April 14, 1935, F. J. Clancy, Chairman, presiding. There were present: N. L. Thompson, F. J. Clancy, M. S. Jared, A. T. Wanamaker, J. L. Norris, O. G. Kesling, K. L. Partlow and W. A. Hulbush.

Dr. Jared was appointed by the Chairman as Secretary of the Committee.

The Chairman stated that the purpose of the Committee was to educate the medical men of the State concerning the problems connected with social insurance; to use the Women's Auxiliary throughout the State as an adjunct in the spread of propaganda; and to carry the message to the laity by radio or any method at their disposal for sending out literature.

The advisability of educating the Parent-Teachers Associations by use of the Women's Auxiliaries was discussed. It was pointed out that Parent-Teacher Organizations have sponsored various medical schemes without having consulted the proper officials of the medical association.

The President stated that the members of the Committee residing in Seattle should be considered a subcommittee to initiate the preparation of pamphlets and other literature, subject to the approval of the entire Committee. Pamphlets were prepared and submitted to the members of the Committee, but because of lack of funds they were not printed or distributed.

The Chairman of the Public Relations Committee appeared, on May 6 last, before the Whatcom County Medical Society and addressed a joint meeting of the Society with the Women's Auxiliary, on the subject of the problems of medicine. An attempt was made to hold similar meetings in the other counties, but because of the lateness of the season this was not possible, and it is hoped that such meetings may be continued throughout the coming year.

A series of medical episodes are being broadcast weekly over Station KOMO, Seattle, the purpose of which is: (1) To create an audience that will listen to a medical program. (2) To create good will for medicine by the vehicle of medical playlets which we hope will arouse a sympathetic and appreciative understanding of the part that medicine has played in the advancement of civilization.

The members of the Committee desire to thank the President and Secretary of the Medical Association for their cooperation in carrying on the work, and the Chairman of the Committee wishes to express his appreciation of the cooperation and support given him by the other members of the Committee.

FRANK J. CLANCY,
Chairman.

Report on Public Health and Sanitation

Your committee on sanitation and public health legislation met previously to the legislative session and carefully considered proposed laws for the health department. These, after amendment in accordance with suggestions from the State Association, were presented to the legislature by Dr. Coffey. With the opposition of some of our own members there was no chance for passage of these bills. We again recommend these bills with probably some minor revisions and we hope that they will be studied carefully by the legislative committee of the State Medical Association and that the Association itself will get behind them for the next session of the legislature. Our present laws can be improved if this is done.

Enclosed for record are the copies of the laws proposed at the next session and also a copy of the committee on public health of the State Planning Commission.

PARK W. WILLIS,
Chairman.

Report on Mental and Nervous Disease Committee

GENERAL CONSIDERATIONS

Throughout the United States during the past decade an intense and active interest has been taken in mental problems, not only by the higher educational institutions but by high schools and also welfare and civic societies; and all groups which are interested in social development and the betterment of human values and qualities.

It appears to us that the medical profession as a whole has not kept pace with laymen in this respect. This is unfortunate, because we now know that practically all social problems, whether of health, education or crime, pauperism, etc., have decided neuropsychiatric aspects. Mental hygiene not only aims to produce and train healthy, active minds and right thinking, but also is that part of preventive medicine which will reduce mental disorders, criminal tendencies and poverty.

The cost of crime in the United States now exceeds the amount which is spent on education, and a large proportion of this is preventable by mental hygiene measures. Reliable estimates show that between 50 and 60 per cent of acquired mental disorders are preventable.

The United States Government statistics, issued by the Census Division of the Department of Commerce, state that from $4\frac{1}{2}$ to 5 per cent (six million) of our total population in the span of a lifetime spend a portion of their time in a state hospital, and many times that number are temporarily or permanently affected to a lesser degree.

The importance of this Department of Medicine warrants our recommendations that a more prominent place be given by the County and State Medical Societies and the University Extension Courses to neuropsychiatric subjects. This is in line with the prominence that is now given to psychiatric teaching in our Class A medical colleges.

MEDICAL LEGAL ASPECTS

The disrepute in which medical testimony in general, and testimony on mental disorders especially, has fallen, is well recognized by laymen as well as members of the bar and physicians themselves. The Washington Bar Association has appointed a committee to study this question and draft measures tending to improve the situation. We recommend that the Washington State Medical Association appoint a committee to confer and act with the Bar Association in this matter.

We endorse the Voluntary Commitment Law of 1931, and believe that this law is a great advancement in the care of mental diseases.

We recommend that the present Voluntary Commitment Law be further amended to permit of a more extended and better use, and that a thorough study be made of our present commitment laws with the idea of adding any improvements which may have been found satisfactory in other progressive states and countries.

We note with satisfaction the great improvements under way in modernizing our state mental hospitals, both from physical and administrative standpoints.

We strongly urge that the standards of mental hospitals be brought up to the minimum recommendations of the American Psychiatric Association for Mental Hospitals, inasmuch as this organization stands in the same relation to regular medicine as the American College of Surgeons does to surgery, and herewith are appended these recommendations.

Inasmuch as a large percentage of mental cases require governmental hospitalization in state or federal institutions, we recommend that a physician whose qualifications shall be fixed by law be appointed to act in a cooperative and executive capacity on those administrative boards which are charged with the management of state mental hospitals, similar to State Industrial Insurance Commission.

The services of medical men with neuropsychiatric training should be used in various other state institutions, particularly in schools and colleges (Columbia University), as well as penal and correctional.

These recommendations are the result of careful study by your Committee. In order to achieve results, we must have the strong endorsement and active support of the Washington County and State Medical Societies.

Therefore, we recommend that the Society appoint an energetic committee with full power to devise effective measures and means.

A. C. STEWART,
Chairman.

Report of Tuberculosis Committee

This Committee during the past year has endeavored to disseminate information regarding the control of tuberculosis to the medical profession and to the public. We believe the spread of information is vital if we are to make further advancement against this disease. Successful warfare against tuberculosis requires the fullest cooperation between the medical profession and the laity. To secure this cooperation there is needed a better knowledge of this disease on the part of all people in every walk of life.

Medical profession. The Committee on outlining their program for the year felt there was an urgent need in the profession for a brief standardized outline on the diagnosis and treatment of tuberculosis. This was compiled by our Committee and presented through the means of lantern slides to the county medical societies in our State. Judging from the interest shown at these meetings we believe this work has been productive of good results.

The Public. Members of the Committee have spoken before numerous clubs, Parent-Teachers organizations, schools and colleges, stressing the importance of (1) routine tuberculin testing, (2) examination of all reactors (including roentgen film), (3) supervision of reactors by family physician until past adolescence, (4) adequate treatment for all who show evidence of active disease.

Special Work. The Committee in conjunction with the Washington Tuberculosis Association has done some special work in our colleges, among which was a tuberculosis survey of the State Normal School at Ellensburg. The purpose of the survey was three-fold: (1) to determine which students have been infected by the tubercle bacillus and of those infected which ones have active disease, (2) to transmit to these people information regarding tuberculosis, (3) to trace the reactors back to the source of infection and find the spreaders.

We chose the Normal School because of the splendid opportunity to aid the tuberculosis cause by educational means. If these embryo teachers could be impressed with the value of a tuberculosis survey, then later as teachers they would be in position to give the tuberculosis campaign valuable aid.

The Tuberculosis Committee has previously directed a tuberculosis survey at the State Normal School at Bellingham and sincerely hopes this work will be carried on at the State Normal School at Cheney this coming year.

This dissemination of knowledge regarding tuberculosis to the medical profession and to the public has stimulated a greater interest in this disease. The resultant understanding and cooperation represent forward steps in the control of tuberculosis.

JOHN E. NELSON,
Chairman.

Report of Social Disease Committee

Due to the multiplicity of medical bills introduced in the last legislature, your committee did not recommend the introduction of any new bills but we did lend our support to the sterilization bill and the bill regarding gin marriages.

We have endeavored to stimulate the members of the profession more completely to report their venereal diseases to their health officers.

We have solicited subscriptions to the Venereal Disease Bulletin issued by the U. S. Public Health Service.

Lectures on venereal disease have been given in the School of Nursing at the University of Washington.

Material on Social Hygiene has been furnished several Parent-Teacher Associations.

An exhibit showing "Venereal Disease Control in the State of Washington" was shown at the American Urological Association meeting in San Francisco, where it aroused a great deal of interest and was mentioned in the public press. This same exhibit is on display at this meeting.

W. Ray Jones of Seattle has been a most active and energetic member of this committee and special credit is due him as the principal accomplishments of your committee are due to his efforts.

L. H. JACOBSEN,
Chairman.

Report of U. S. Medical Service Committee

I am quite at a loss to know what this committee can do that is worthy of reporting to the Association.

There are five national medical services: those of the Army, Navy, U. S. Public Health Service, the Indian Service and the Veterans' Bureau.

There was, until the last two years, reason to protest against the free and indiscriminate hospitalization and professional service to veterans of all wars without regard to the financial condition of the applicant. This abuse has been remedied.

If in the opinion of any member or members of the Committee, there are some matters which should be taken up with the State Association I shall be glad to ask the Committee to give consideration to them.

Your own viewpoint will be much appreciated and I trust that you will write to me.

SAMUEL E. LAMBERT,
Chairman.

Report of Finance Committee

This Committee met with the Board of Trustees on October 29, 1934, and recommended the following budget which was adopted by the Board of Trustees:

Estimated income of \$6000.00.	
To Northwest Medicine	\$2,400.00
To Trustees' Meetings	150.00
To President's Office	300.00
To Delegates of A. M. A.	250.00
To Secretary's Office	1,500.00
To the Annual Meeting	800.00
	\$5,400.00

It later recommended an appropriation of \$100.00 be made to the Cancer Committee for its activities, which has not yet been approved by the Trustees or House of Delegates.

It recommends that \$200.00 be appropriated to pay for ten broadcasts under the auspices of the Public Relations Committee.

The sum of \$492 was raised from one dollar subscriptions for committee work, out of which these appropriations are recommended. It is recommended that the unexpended balance of this fund be retained for such committee work as the Trustees may see fit to order done.

It recommends the payment of the bill of the Committee on Revision of By-Laws amounting to \$44.00.

It recommends that hereafter, the appropriation for the maintenance of the Secretary-Treasurer's office be as follows:

From the Defense Fund, there shall be paid monthly \$100.00, from the General Fund of the Association there shall be paid monthly \$45.00, of which \$25.00 shall be for the salary of the Secretary-Treasurer and \$20.00 for rent, in accordance with the previous action of the House of Delegates.

D. H. LEWIS
C. W. SHARPLES
Finance Committee.

Report of Washington State Medical Service Bureau

Dr. N. L. Thompson,
President of the Washington State Medical Association,
Everett, Washington.

Dear Doctor:

I thought I would report to you about the meeting of the committee from the Medical Bureau with Mr. Ernst and his assistant, Miss Fitzsimmons, which was held at Olympia on July 26.

It is not necessary for me to tell you what we presented to them because you were in Seattle when the report of the committee was given shortly before and which was in-

dorsed at that time by representatives of the Bureau and also commented upon very favorably by yourself at that time. We were very well received and went over our plan as presented to the Bureau and some discussion as to Dr. Coffey's opinion as to whether it would interfere with his work or not. Mr. Ernst was informed that Dr. Coffey indorsed this plan as being entirely satisfactory to him. The Seattle doctors, especially Dr. Spickard, had gone over this with them previously. We expected that Dr. Coffey would be at the meeting and had expected that the office at Olympia would inform him, but they thought we would do that.

Mr. Ernst finally stated that this plan was entirely satisfactory to him and after some discussion about how the dentists would react to the plan he finally said, "Well, you have presented a plan which I believe is workable and satisfactory to us. Now let us get busy and put this over without delay."

Dr. Spickard had taken up this plan with the State Officers of the Dental Association and their reaction seemed to be favorable, but they are to have a meeting of the Trustees on next Sunday at which time it will be discussed. If they do not endorse this plan, I believe from a remark of Mr. Ernst that he will put it over without them. I should say that we made it clear to him every county should be treated the same or there would be dissatisfaction among the members of the profession.

I think this gives a report of our work which I am sure will prove satisfactory to the profession.

Yours respectfully,
J. REID MORRISON.

RESOLUTIONS

The following resolutions were presented and referred to the Resolutions Committee:

Presented by S. E. Lambert of Spokane:

Whereas, numerous employees of the National Government receive compensation and medical attention for accidents incurred in the course of employment, and

Whereas, these employees at the present time are being largely taken from the lists of the unemployed and during the illness and accidents have been cared for by the family practitioners, who are, but in few instances, permitted to treat these injured men, therefore be it

Resolved by the House of Delegates of Washington Medical Association that regularly licensed practitioners be authorized to treat these employees of the National Government who are entitled to receive this treatment because of such employment, rather than being as at present entitled to such treatment by a selected few appointees of the U. S. Employees' Compensation Commission, and further be it

Resolved, that a copy of this resolution be sent to the U. S. Employees' Compensation Commission and to each of the Senators and Representatives from this State.

Presented by H. D. Fritz of Cowlitz:

Whereas, it was the purpose and intent of the Medical Aid Law of the State of Washington to furnish such surgical services and care as would return injured workmen to their employment with a minimum of time loss and maximum of recovery, and

Whereas, under said law the injured workmen were to have their free choice of physician or physicians, except in isolated industrial localities where it was necessary that all such work would be guaranteed to one physician in order to induce such physician to remain in such an isolated place, and

Whereas, isolated industrial sections have been reduced to a minimum, due to the present modern transportation facilities, and

Whereas, under the interpretation of the present said law this work is not equitably distributed among the qualified physicians in this State, and

Whereas, under the present interpretation a majority of the workmen are not permitted to determine who shall render them Medical Aid service, now, therefore, be it

Resolved, that Washington State Medical Association go on record as favoring such change in wording of the Medi-

cal Aid Law as will guarantee industrial workers in extra-hazardous work the right of collective bargaining in the selection of those who are to furnish them medical aid services.

The above resolution was adopted by the members of Cowlitz County Medical Society at a special meeting of said Society on August 6, 1935.

C. J. SELLS, *President*

A. F. BIRBECK, *Secretary*.

Presented by C. W. Sharples of Seattle:

Whereas, the private practitioners of medicine of Washington are vitally concerned with the public health problems and the public health administration, both state and local, be it

Resolved, that the President of Washington State Medical Association appoint a committee from the members of its Board of Trustees to act in an advisory and consultant capacity on matters of public health policy with the State Director of Health.

Presented by C. W. Sharples of Seattle, acting as a member of the Finance Committee:

The Finance Committee recommends that the House of Delegates order that the budget proposed by the Finance Committee cover the period of July 1 to June 30, inclusive.

Presented by C. W. Sharples of Seattle, acting as a member of the Finance Committee:

The Finance Committee recommends that the amendment to the By-Laws creating a Finance Committee be amended to read, after the words "elected by the House of Delegates," which election shall be for a three-year period, provided that the first year, one shall be elected for three years, one for two years and one for one year, and thereafter one for a three year period."

Presented by C. W. Sharples of Seattle, acting as a member of the Finance Committee:

The Board of Trustees had in the Budget an appropriation of \$150.00, approved by themselves. They contracted expenses of \$201.40.

We recommend that the additional expenditure of \$51.40 be approved.

The President's office was allotted \$300.00. On June 30, 1935, there was an audit of expenses of \$307.87.

We recommend that the expenditure of the excess \$7.87 be approved and also that the Chairman of the Finance Committee be authorized to approve any expense that has been incurred by the President since that date.

Presented by V. W. Spickard of Seattle:

Resolved, that the Board of Trustees of Washington Medical Service Bureau be empowered to act as the Economic Committee of the State Medical Association, subject to the approval of the Board of Trustees of the Washington State Medical Association.

Resolved, that the By-Laws be amended to provide that the delegates to the A. M. A. shall be ex-officio members of the House of Delegates.

Presented by C. Louis Hoeffler of Everett:

Whereas, numerous bills were introduced in the last legislature attempting to undermine the standards of medical practice which have been so laboriously acquired, and

Whereas, some of these were prevented from becoming laws only through strenuous effort by the Public Health League, to which had been entrusted the execution of legislative matters in behalf of the medical profession, and

Whereas, we have been told by those who watched proceedings at Olympia that, unless something is done in the interim, we may not fare as well in the next legislature, and

Whereas, the threat of socialized medicine will gain in strength if steps are not taken to offset the insidious propaganda for state medicine, be it

Resolved, that Washington State Medical Association raise the sum of \$25,000 per annum to properly conduct the

work of the Association and carry out needed education of the public and profession against socialized medicine. Be it further

Resolved, that the money, above that provided by the annual dues, be raised by subscription under the direction of the Finance Committee.

Presented by D. Reid Morrison of Bellingham:

Whereas, each succeeding year sees a new president of the Washington State Medical Association elected, who usually is not acquainted with the duties of his office until some time has elapsed, and

Whereas, this state of affairs retards the work of the Association, and

Whereas, a President-elect would have opportunity to become acquainted with the duties of President and the policies of the Association, be it

Resolved, that Article VI, Section 1 of the By-Laws of Washington State Medical Association be amended to read: "The Officers of this Association shall be a President, President-elect, two Vice-Presidents, a Secretary-Treasurer, two Assistant Secretary-Treasurers, a House of Delegates, and a Board of Trustees." Be it further

Resolved, that Article VII of the By-Laws be amended by adding thereto a section defining the duties as follows: "The President-elect shall assist the President in the discharge of his duties, be an ex-officio member of the House of Delegates and Board of Trustees and succeed to the presidency of the Association in the event of the death of the President and automatically after serving one year as President-elect."

Presented by C. Louis Hoeffler of Everett:

Whereas, the present organization of Washington State Medical Association permits of no real continuity of policy, due to the fact that each new administration has to feel its way and much valuable time is thereby lost,

Whereas, this condition does not permit of such aggressive action in matters pertaining to its success and the proper protection of the health of the citizens of the State, be it

Resolved, that the Board of Trustees be instructed to secure the services of a full time Executive Secretary, whose duties shall be those usually devolving upon such an officer. Be it further

Resolved, that to secure the adequate carrying out of these resolutions, Section 2, Article XII, of the By-Laws be amended to read: "the annual assessment against each active member of the component societies shall be ten dollars (the annual assessment for membership shall be eight dollars and the price of subscription to the journal shall be two dollars). Honorary members and fellows not in active practice shall not be assessed for annual dues but they shall not receive the journal unless they individually subscribe for it."

Presented by C. W. Sharples of Seattle, as a member of the Finance Committee:

The Finance Committee recommends to the House of Delegates that its By-Laws be amended so that the Committee be reduced in number. It made a cross section survey and determined that the majority of the Committee reports were not read. There is in some instances an expense in preparing the reports and it is also required that they be published in our program which is also an expense.

The recommendation is that Article XI, Section 2, be amended so that it shall read: "The Annual Report of all standing committees should be made in writing to the House of Delegates on or before the first day of the Annual Meeting." (This clause eliminates the publishing of these reports.)

Article XI, Section 3, be amended to read: "The Executive Committee, the Board of Governors of the Defense Fund, the Public Relations Committee and the Finance Committee."

It is also recommended that the subsections b, c, d, e, f, g, h, i, j, k, l, m, and n, be rescinded and that as a substitute for subsection "a" the following be adopted:

"That the Executive Committee shall consist of the President, the Past-President and the Secretary-Treasurer, who

shall prepare the programs for the annual meetings of the Association, who shall be the Editing Committee, and it shall be their duty to approve of all publications that are issued under the auspices of this Association. It shall also be their duty to act on behalf of the Association, subject to approval of the Board of Trustees, on any and all emergency matters that may present themselves."

Subsection "b": The Public Relations Committee to be a substitute for the Legislative Committee and to add that they shall contact the public at large in all matters that are from a medical standpoint advantageous for the public and may further the best interests of the Association.

"c." Board of Governors of the Defense Fund.

"d." The Finance Committee.

We also recommend that it is the policy of the Board of Trustees to appoint, through the President of the Association, special committees as the occasions may arise, which committees shall report to the Board of Trustees and such reports may or may not be transmitted to the House of Delegates in Annual Meeting at the direction of the Trustees.

Presented by H. J. Davidson of Seattle, as a member of the Committee on Revision of the Constitution and By-Laws of the State Medical Association:

Dr. Davidson submitted, in the form of a resolution, a complete revision of the Constitution and By-Laws.

Presented by F. Slyfield of Seattle:

Whereas, A. O. Loe, one of the most respected and beloved members of the Board of Trustees of Washington State Medical Association has been called by death, the loss of his comradeship, his excellent judgment and his common sense are keenly felt. Therefore, be it

Resolved, that the Board of Trustees recognize this loss by expressing to the family of Dr. Loe our sincere sympathy and appreciation of his efforts on behalf of the Medical Association and of scientific medicine. Be it further

Resolved, that a copy of this resolution be spread upon the records of the Association.

Report of Committee on Necrology

Presented by H. D. Fritz, R. S. Mitchell and Frederick Slyfield:

Whereas, twenty-six of our members have passed on since the 1934 meeting of this Association, be it

Resolved, that the House of Delegates of Washington State Medical Association recognize the demise of these former fellow members and instruct the Secretary to inscribe with honor and regret the following names upon the records of the Association. Further be it

Resolved, that the Secretary write each family a letter of condolence, specifying this is the action of the Washington State Medical Association.

<i>Name and Residence</i>	<i>Age</i>	<i>Date of Death</i>
E. E. Maxey, Aberdeen	67	August 31, 1934
W. J. Griffen, Seattle	62	August 20, 1934
H. S. Smith, Black Diamond	65	October 10, 1934
F. C. Leytze, Seattle	59	November 30, 1934
C. C. Kellam, Port Blakely	69	December 7, 1934
V. J. Capron, Friday Harbor	67	November 16, 1934
M. Russell, Seattle	76	January 17, 1935
W. E. Turner, Seattle	65	January 12, 1935
A. L. Jacobson, Seattle	40	January 28, 1935
E. F. Taake, Seattle	60	February 8, 1935
H. W. Bortner, Everett	45	January 8, 1935
E. R. Perry, Tacoma	62	December 19, 1935
L. A. Robinson, Spokane	63	January 19, 1935
J. B. Loughary, Puyallup	75	February 18, 1935
J. A. McNiven, Aberdeen	80	February 4, 1935
F. S. Bourns, Seattle	69	March 18, 1935
C. E. Butts, Spokane	51	March 31, 1935
W. B. Scott, Seattle	60	March 12, 1935
F. H. Collins, Goldendale	64	March 18, 1935
D. M. Prince, Mount Vernon	38	April 11, 1935
J. T. Coleman, Chehalis	78	April 20, 1935

F. Epplen, Seattle	55	May 25, 1935
E. L. Kimball, Spokane	83	May 17, 1935
A. S. Austin, Aberdeen	72	May 11, 1935
F. S. Palmer, Seattle	70	June 5, 1935
A. O. Loe, Seattle	64	July 31, 1935

Presented by C. L. Hoeffler of Everett:

All organizations have members who might be singled out as towering above the majority, those that are recognized as leaders, and who possess the ability to perform special service which they freely give whenever the time and need arises, Now, be it

Resolved, that we, the House of Delegates, assembled in its regular annual session, recognizing the ability, qualifications and willingness to serve of Caspar W. Sharples, Chairman of the Finance Committee, for efficient and conscientious service, extend to him a vote of thanks. And be it further

Resolved, that a copy of these Resolutions be spread upon the minutes of the Association.

Nathan L. Thompson, President, appointed the following Resolution Committee and requested that it meet immediately after the House of Delegates meeting adjourned: E. C. Leach, Chairman, H. G. Wright, J. E. Bittner, C. L. Smith, W. B. Penney.

The President also appointed the following as tellers: R. S. Mitchell, G. F. Cook, M. P. Graham.

After discussion in the House of Delegates and on motion duly made and seconded, Nathan L. Thompson appointed a special committee to study the proposed revision of the Constitution and By-Laws, which special committee was to report their findings to the Resolution Committee and the Resolution Committee to make the final report. This was for the purpose of expediting matters only. The special committee appointed was as follows: C. L. Hoeffler, A. E. Gerhardt, T. Morcom, L. G. Steck, D. H. Lewis.

There was considerable discussion as to the activities of the State Medical Service Bureau in relation to the permanent medical relief program undertaken by them.

The President urged all members to attend the luncheon to be given by the Medical Service Bureau, noon, August 13, at Masonic Temple, in order that they might hear further discussions on this matter and further familiarize themselves with the proposed work.

President Thompson then announced a special meeting of the Board of Trustees to be held at the same place, at 4 p.m., August 13, to determine whether or not the action of the State Medical Service Bureau in relation to the permanent relief program should be ratified.

On motion duly made and seconded the meeting was adjourned at 11 a.m.

BOARD OF TRUSTEES

A special meeting of the Board of Trustees was held at Masonic Temple at 4 p.m., Tuesday, August 13.

The Secretary called the roll and a quorum was found to be present.

After a short discussion on the activities of the State Medical Service Bureau in relation to the permanent relief program, a motion, duly seconded, was carried, "That the Board of Trustees ratify the action of the State Medical Service Bureau in relation to the permanent medical relief program."

On motion duly made and seconded, the special meeting of the Board of Trustees was adjourned at 4:15 p.m.

HOUSE OF DELEGATES

SECOND SESSION

Wednesday, April 14

The second meeting of the House of Delegates was called to order by the President at 9 a.m., August 14, in the Masonic Temple.

The Secretary called the roll and a quorum was found to be present.

E. C. Leach, Chairman of the Resolutions Committee, reported for the Committee as follows:

Committee refers without action resolution regarding regularly licensed practitioners treating government employees. Adopted.

Committee recommends adoption of resolution referring to change in the Medical Aid Law regarding bargaining for services. Adopted.

Committee recommends adoption of resolution regarding committee to act with State Director of Health. Adopted.

Committee recommends adoption of resolution regarding budget covering period from July 1 to June 30, inclusive. Adopted.

Committee recommends adoption of resolution regarding amendment to by-laws creating a Finance Committee. Adopted.

Committee recommends adoption of the resolution of the Finance Committee regarding allowance of extra expenditures. Adopted.

Committee recommends adoption of the Report of Finance Committee and its recommendations. Adopted.

Committee recommends rejection of the resolution regarding Board of Trustees acting as Economic Committee. Rejected.

Committee recommends adoption of resolution regarding raising \$25,000 annually for legislative work. Adopted.

Committee recommends rejection of resolution regarding changing By-Laws giving powers to President-elect. Rejected.

Committee recommends rejection of resolution regarding increasing annual assessments against members for the purpose of employing a full time Executive Secretary. Rejected.

Committee recommends adoption of resolution of the Finance Committee that the By-Laws be amended as to Article XI, Section 2; Article XI, Section 3; also subsections b, c, d, e, f, g, h, i, j, k, l, m, and n; also that portion of the resolution pertaining to the personnel of the Executive Committee and their duties; also that portion of the resolution pertaining to appointment of special committees. Committee recommends rejection of that portion of resolution marked "subsection b".

Committee recommends the following addition to said resolution: "A. The Financial Committee shall consist of three members nominated by the Board of Trustees and elected by the House of Delegates. It shall be their duty to supervise the funds and investments of this association and of the Defense Fund."

"B. The Board of Governors, consisting of the President and Secretary-Treasurer and one member from each Congressional District, who shall be nominated by the Board of Trustees and elected by the House of Delegates, etc. It shall be their duty to give aid and cooperation to their constituents in case of threatened or actual malpractice suits."

On motion duly made and seconded this resolution was

taken up by the House of Delegates, section by section, with the following results.

Rejected—First section.

Approved—Amendment to Article XI, Section 2.

Approved—Amendment to Article XI, Section 3.

Rejected—Rescinding subsections b, c, d, e, f, g, h, i, j, k, l, m, n.

Rejected—Subsection "b".

Adopted—Subsections A, B, C and D.

Rejected—Balance of resolution.

Committee recommends rejection of the resolution on revision of the Constitution and By-Laws, with the proviso that it be given another year's study by a committee to be appointed by the incoming President. Rejected, with provision approved.

Resolution on decease of Dr. A. O. Loe adopted by rising vote.

Resolution on decease of other state doctors adopted by rising vote.

Resolution on showing marked respect to C. W. Sharples adopted by rising vote.

President Thompson: If there is no other business we will proceed to the election of officers.

The following officers were elected:

President.....B. F. Bice, Yakima
First Vice-President.....Arthur Betts, Spokane
Second Vice-President.....J. L. Norris, Longview
Secretary-Treasurer.....C. H. Thomson, Seattle
First Assistant Secretary-Treasurer.....V. W. Spickard, Seattle
Second Assistant Secretary-Treasurer, J. E. Bittner, Yakima
Trustees, First District—H. G. Wright, Seattle; E. C. Leach, Arlington; R. L. Zech, Seattle; W. D. Read, Tacoma.
Trustees, Second District—C. H. Anderson, Spokane; H. E. Rhodehamel, Spokane; A. E. Gerhardt, Wenatchee; C. L. Smith, Spokane.
Delegates to A. M. A. Convention—B. T. King, Seattle; W. B. Penney, Tacoma, alternate; J. H. O'Shea, Spokane; F. R. Patton, Spokane, alternate.
Journal Trustees—F. J. Clancy, Seattle; R. N. Hamblen, Spokane; H. G. Willard, Tacoma.
Finance Committee—C. W. Sharples, Seattle (3-year term); D. H. Lewis, Spokane (2-year term); W. D. Kirkpatrick, Bellingham (1-year term).

The following were elected to the Board of Governors:

First District.....P. J. Gallagher, Seattle
Second District.....J. R. Morrison, Bellingham
Third District.....J. B. Blair, Vancouver
Fourth District.....G. W. Cornett, Yakima
Fifth District.....J. M. O'Shea, Spokane
Sixth District.....W. D. Read, Tacoma

C. H. Thomson: I would like to make a motion that we thank Nathan L. Thompson and the Members of the Snohomish County Medical Association for a very excellent meeting and their hospitality.

Dr. Bittner: I second the motion. Motion adopted by a standing vote.

GENERAL ASSEMBLY

SCIENTIFIC PROGRAM

Tuesday, August 13

8:00 a.m. Registration, Masonic Temple.
8:30 a.m. Meeting of the Board of Trustees.
9:00 a.m. Meeting of the House of Delegates.
10:00 a.m. President's Address, N. L. Thompson.
10:20 a.m. "The Clinical Management of Poliomyelitis," Edward B. Shaw, San Francisco, Calif.
11:20 a.m. "The Prognosis in Chronic Arthritis," K. K. Sherwood, Kirkland.
11:40 a.m. "The Influence of Modern Psychiatry on Medi-

- cal Thought. A Psychobiologic interpretation of the Neurovegetative Syndromes, with presentation of case material," A. W. Hackfield, Seattle.
- 2:00 p.m. "Ingestant Allergy," Alfred H. Rowe, Oakland, Calif.
- 3:00 p.m. "Extraperitoneal Cesarean Section," James F. Scott, Yakima.
- 3:20 p.m. "What Medicine May Expect in the Future," Frank J. Clancy, Seattle.
- 3:40 p.m. "Some Results of Economic Study in Pierce County," Horace J. Whitacre, Tacoma.
- 4:00 p.m. An Address, Olin West, Chicago, Ill.
- 8:00 p.m. Talk on the Activities of the Council of Pharmacy and Chemistry and the Council of Physical Therapy illustrated by slides, J. A. Petit, Portland, Ore.

Wednesday, August 14

- 8:00-9:40 a.m. Movie-Talking Pictures.
1. A Study of Infant Behavior, by Arnold Gesell, Yale Psycho-Clinic.
2. Laparotrachelotomy, by Joseph B. De Lee, Chicago, Ill. Graduate Nurses are invited to witness these films.
- 9:00 a.m. Meeting of the House of Delegates.
- 10:00 a.m. "Pain, Its Relation to Diagnosis," H. W. Riggs, Vancouver, B. C.

- 11:00 a.m. "Rate of Absorption of Various Fluids by the Bowel," Walter W. Ebeling, Mount Vernon.
- 11:20 a.m. "Acute Pancreatic Necrosis," C. E. Hagyard, Seattle.
- 11:40 a.m. "Abruptic Placentae," H. H. Skinner, Yakima.
- 12:00 p.m. "Studies in Rickets: Report of a Thousand Cases," C. Ulysses Moore, Portland, Ore.
- 3:00 p.m. "Brickbats and Bouquets," David H. Lewis, Spokane.
- 3:20 p.m. "Internal Hemorrhoids: Determination of Treatment," Arthur C. Crookall, Seattle.
- 3:40 p.m. "Routine Treatment of Fractures," D. A. Murray, Seattle.
- 4:00 p.m. "Inhalant Contact and Bacterial Allergy," Alfred H. Rowe, Oakland, Calif.

The retiring President introduced D. F. Bice of Yakima as the new President, who invited the Association to meet at Yakima next year. He said, "If there is no objection," and there was none. He then adjourned the Washington State Medical Association to meet in Yakima in September, 1936.

CURTIS H. THOMSON,
Secretary.

STATE DEPARTMENTS

OREGON

COMMENTS ON THE ANNUAL MEETING

Portland, Ore., Sept. 25, 1935.

The Sixty-first Annual Meeting of Oregon State Medical Society has passed into history. It was held at Hotel Gearhart, Gearhart, September 19-21. This meeting was marked by a number of desirable occurrences. The program was of a very high type. The attendance at every paper consisted of a large percentage of the registrations. Two outstanding men, Dr. Hans Lissner of San Francisco and Dr. Hubbard T. Buckner of Seattle were on the program. Their papers were on subjects of every day interests, delivered by specialists in terms of the general practitioner. Dr. Lissner's paper will result in improved diagnosis of endocrine cases, and Dr. Buckner's paper in improved results in fractures of the elbow and spine.

The society was fortunate in being host again to its first and fiftieth president, that fine gentleman, Dr. Alfred Kinney. May he live to attend many more of our annual meetings.

The fraternal spirit manifested in this meeting was such that one must conclude that the spirit of solidarity and cooperation is growing apace within the ranks of the organization.

The Hotel Gearhart is an ideal place for holding meetings. Extraneous matters which interfere with the attend-

ance at the sessions is at a minimum. The scientific and commercial exhibits were of a high order and were well attended. It is here that many newer thoughts in medicine and new appliances were seen. Golf, as usual, was indulged in by the devotees of the game, the tournament being held in the last afternoon.

The attendance at this meeting was above the average for meetings outside of Portland which, of course, are more largely attended than are the others. The physicians present received much of value in the scientific papers as well as in the renewal of friendships and those who did not attend lost in both of these.

The officers are to be congratulated and especially the outgoing president, Dr. A. M. Webster, for the courteous, withal speedy, manner in which the sessions of the House of Delegates were handled, and also the scientific sessions in which he was efficiently aided by the vicepresidents. Dr. G. A. Massey, the incoming president, gives promise of wielding great influence in unifying the profession and it is prophesied that during his incumbency a very large increase in membership will be attained. Dr. Thomas Wynne Watts, president-elect and Dr. Morris L. Bridgeman, secretary, were among the newly elected officers. Dr. Karl H. Martzloff was elected trustee of NORTHWEST MEDICINE for a three-year term.

A. G. BETTMAN, *Editor.*

WASHINGTON

CARE OF STATE INDIGENTS

Yakima, Wash., Sept. 23, 1935.

For several months past I have been of the opinion that the Medical Service Bureaus would ultimately be the economic solution of our State Association, as regards our relation to the indigent relief situation in Washington. During the past year very few of our counties have received more than a mere pittance for their services to the W. E. R. A. The blame has been very largely due to a lack of thorough organization among the different county groups,

plus the chiseling activities of the W. E. R. A. officials toward organized medicine. By this time you doctors of Washington must have come to the realization of the truth, namely, that the W. E. R. A. with its corps of trained social workers, is one of organized medicine's worst enemies. Examples are to be found in practically every county of our state, where physicians have been called upon to care for this class of indigents, and have been chiseled by the organization's heads to the merest fraction of what should be paid us.

In accepting this relief work, the doctor automatically becomes an employee of this particular governmental alphabetical order and he should receive full compensation for the services rendered; but has he? Have any of you yet heard of any of the officials of the W. E. R. A., any of its clerks or social workers receiving a deficiency payment in their salaries because of a lack of funds? Is not the physician just as entitled to remuneration for his services as is the hired social worker who is madly rushing through our communities every day trying to discover more "clients," as they artfully call their new converts to indigency? Why, then, should the medical fraternity quietly sit back and allow someone in power, in all probability a mere hireling, to dictate a program of social or state medicine for us to become subservient to?

A fair example of this is the hundreds of free hospital beds in our State that are filled constantly through the diligent efforts of our trained social workers and their assistants. And wherein, pray tell me, does the physician benefit in this program? It is true that we must necessarily be called upon to do a certain amount of charity work, but why have a corps of high-salaried workers to guide these patients to a charity hospital? If this program is continued, most of you men who read this article will see the day when free clinics will be established in every community, and the doctors will be mere hirelings of a higher organization, dictating to you as to your salary, hours of work, et cetera.

The foregoing is merely a prelude to the report of a meeting held in Olympia on August 20, 1935. And this brings me back again to my original statement regarding the benefits to be accrued from our Medical Service Bureaus. On the foregoing date a committee of bureau officers met in Olympia with heads of the alphabetical order, very ably assisted by Dr. E. R. Coffey, Director of State Department of Health, where it very likely was expected that Washington physicians would be advised as to the insignificant part they would play in the future permanent relief set-up for our State. The surprising and satisfying feature of this meeting, however, was the fact that a group of M.D.'s eventually dictated to the would-be dictators exactly what would be our program in the future regarding indigent medical care as a permanent program. Briefly, the plan is as follows:

The committee assembled at Olympia agreed to take care of the indigent relief, beginning October 1 and continuing until the next legislature assembles, on one-half the fee schedule allowed by the Department of Labor and Industries. Then, when the legislature meets in 1937, the plan is to present a bill authorizing the State to make an appropriation, based on the statistics obtained in these following sixteen months, at full 100 per cent state industrial fees, as a future permanent program for this class of work.

In those counties where Bureaus are operating, it is planned to have this service under their supervision, while the other counties will manage the program through the local medical societies. It is recognized that possibly two or three of our counties will not fare so well by this temporary agreement, but most of them will receive more than they have had under the old W. E. R. A. set-up. Eventually, with a proper state appropriation, the physicians will receive a fair remuneration for this class of work.

With the ever increasing demand for social medicine by

certain individuals and organizations, it is necessary for the doctor to be on the defensive at all times. If our social welfare workers are to continue in the field, we can be assured there will always be plenty of indigents. I believe we will agree that the foregoing program is one form of social medicine, but granting that, we have the satisfaction of feeling that we dictated the terms, which most likely would have been forced upon us at a very much lower figure, had not this committee taken this action.

To my mind, the foregoing program, dictated by a group of bureau officers, is the physicians' first real victory in our war against social medicine. Had conditions continued in the future permanent set-up as it has been operated under the W. E. R. A., state medicine would be in sight.

Now, fellows, if this is a victory, and I believe it is, why can't we go from here? Let every one of the different communities see to it that the proper legislators are sent to our Capitol in 1937 to insure a square deal for organized medicine in the future. Concentrate as a group against the election of such cult-minded ignoramuses as comprised a goodly share of our last session at Olympia.

DELMAR F. BICE,

President Washington State Medical Association.

THE WOMAN'S AUXILIARY

The fourth annual meeting of Woman's Auxiliary to Washington State Medical Association was held in Everett, August 12-14, with a registration of 87 members and 6 visitors. Mrs. Nathan L. Thompson, President, presided over all meetings which were held in the Masonic Temple.

At the regular business sessions on Monday and Tuesday the President, the District Vice-Presidents, the Chairmen of Standing Committees and the County Presidents made their reports, each one giving interesting accounts of statewide or local accomplishments in making the Auxiliaries useful in public health education or to the medical profession. A list of recommendations and one of resolutions were passed which will be sent to each County Auxiliary for action.

The social functions were the golf tournament on Monday, at which there were thirteen contestants and twelve prizes, the Tuesday luncheon at Canyon Creek Lodge, beautifully set in rustic surroundings near Granite Falls. Here, Mrs. O. F. Lamson, the honor guest, twice elected National Second Vice-President, spoke upon the history of the Auxiliary and urged each member to keep informed of all activities concerning the medical profession and to be ready to function as individuals when necessary. Tuesday evening the doctors and ladies enjoyed a dinner dance at the Temple.

On Wednesday at the Everett Golf and Country Club the women met for the annual auxiliary luncheon. Reports of the golf winners and of three delegates to the national meeting at Atlantic City were made. The names of Pierce County, Walla Walla Valley and Spokane County Auxiliaries were selected for the roll of honor this year. Mrs. D. H. Bell of Tacoma read the prize essay for the state, the winner being a Tacoma boy. The newly elected President, Mrs. J. B. Blair of Vancouver, was presented with the gavel by Mrs. N. L. Thompson.

MRS. LUMAN S. ROACH,

Recording Secretary.

BOOK REVIEWS

A TREATISE ON MEDICAL JURISPRUDENCE. By Benton S. Oppenheimer, LL.B., LL.M. of the Cincinnati Bar, Professor of Law, College of Law, University of Cincinnati, etc. 290 pp. \$4.00. William Wood & Company, Baltimore, 1935.

The author states that the particular purpose in writing this book is to furnish helpful suggestions to the physician who is seeking authentic information concerning his rights and duties. Among the subjects discussed are chapters on medical jurisprudence and practice of medicine, the relation between physician and patient, duties and obligations of physician to patient, malpractice and evidence. The subject of malpractice applies particularly to every practicing physician. This is defined as "the failure upon the part of a physician properly to perform the duty which devolves upon him in his professional relation to his patient, resulting in some injury to the patient." Many aspects of the subject are considered, as acts constituting malpractice, acts not amounting to malpractice, failure to make a proper diagnosis, which it is stated may constitute malpractice, as well as the absence of such care and skill in the treatment of disease. In discussion of roentgen pictures the question arises as to their ownership. It is stated that in this country and England it has been held that courts follow the rule laid down for the ownership of ordinary photographic plates, that they are the property of the photographer, but the person photographed has right to control their use. Pictures, however, taken by roentgen laboratories at the request of the subject with no attempt to diagnose his ailment, are the property of the subject. There are also sections on the administration of anesthesia and failure to remove foreign substances from the body. One who performs an operation without the consent, expressed or implied of the subject, is chargeable in the law with assault and battery. A patient cannot successfully maintain an action against a physician for malpractice, if he has been guilty of contributory negligence in failing to carry out the physicians instructions. Many other aspects of medical jurisprudence are included which can be read with profit by every practitioner.

PREVENTIVE MEDICINE AND HYGIENE. By Milton J. Roseman. Professor of Preventive Medicine and Hygiene, Harvard Medical School, etc. With chapters upon Mental Hygiene, by Abraham Myerson; Sewage and Garbage, by Gordon M. Fair; Vital Statistics, by John W. Trasy; Statistical Methods, by Carl R. Doering; Conservation of Vision, by J. Herbert Waite and Contraception, by Eric M. Matsner. Sixth Edition. 1481 pp. \$10. D. Appleton-Century Company, New York, London, 1935.

During many years of varied experience in public health work the author has served as quarantine officer, in epidemic campaigns, in epidemiologic investigations and in public health laboratories at home, on the continent and in the tropics. The accumulations of his experiences are incorporated in this book, which may be taken as representing his personal views gathered in the field, in the laboratory, in the classroom and in administrative offices. The progress in hygiene and sanitation has been so rapid that the subject of preventive medicine is so broad that it was more difficult for the author to decide on what to leave out than what to include.

In order to prevent or suppress a communicable disease, one must have a knowledge of its mode of transmission.

This is the most important single fact, according to the author, for successful personal prophylaxis, as well as in general warfare against infection. Therefore, the communicable diseases have been grouped in accordance with their modes of transference. Each one of the important communicable diseases is discussed separately in order to bring out the salient points upon which prevention is based.

The book is divided into two parts, namely, that which considers the person (hygiene) and that which considers the environment (sanitation). Chapters include the prevention of the communicable diseases, venereal prophylaxis, heredity, immunity, eugenics and similar subjects in their relations to health and disease, a discussion of food, water, air, soil, disposal of wastes, vital statistics, diseases of occupation, industrial hygiene, school hygiene, disinfection, quarantine, isolation and other topics and sanitary importance, as well as subjects of interest to health officers.

The subjects considered for the first time in this book are contraception, maternal mortality, heart disease, diabetes, ringworm, snake poisoning, psittacosis; also periodic health examinations, hospitals, etc. Subjects extensively rewritten are venereal diseases, sex hygiene, heredity and eugenics, drug addiction, vitamins and the deficiency diseases, infant mortality, industrial hygiene, diseases of occupation, scarlet fever and undulant fever. The following have been largely reorganized with much new matter: tuberculosis, diphtheria, Vincent's angina, measles, insect-borne diseases, flukes, quarantine, etc.

BOWERS.

THE STORY OF MEDICINE IN THE MIDDLE AGES. By David Riesman, M.D., Sc.D., Professor of History of Medicine and Professor Emeritus of Clinical Medicine, University of Pennsylvania. Illustrated. 402 pp. \$5.00. Paul B. Hoeber, Inc., New York, 1935.

It is stated that people generally know more about the mythology of Greece and history of ancient Rome than of the Middle Ages, a period much nearer to us. This work is intended to fill the hiatus for the medical student between the later Greeks and the Moderns. There are instructive chapters on Monastic and Clerical medicine, Arabian medicine, the Jewish physicians of the Middle Ages. The universities are featured with chapters on those of Montpellier, Bologna, Padua and Paris. It is stated that the University of Oxford may be considered a daughter of the University of Paris. At one time during the reign of Henry III it had nearly 30,000 students, many of these from Paris. Neither Oxford nor Cambridge was favorable to teaching of surgery, although there were a few surgeons in the thirteenth and fourteenth centuries from Oxford. They bore the title "Magister," implying they had not completed the medical course.

Through the Middle Ages anatomy was a neglected field of medicine. In 1300 a papal bull prohibited dissection. Yet the Senate of Venice in 1308 ordered that one cadaver might be dissected annually. The turning point between the Middle Ages and modern times dated from the life and teachings of Andreas Vesalius. At the age of twenty-three he was elected professor of surgery, including anatomy, at University of Padua. During the thirteenth century twelve diseases were considered contagious, including influenza, trachoma, ophthalmic gonorrhea, pulmonary tuberculosis. The chapters on medieval diseases and epidemics is an interesting description of the deaths caused by them, while the plague or Black Death is presented in considerable de-

tail. The origin of syphilis is discussed with a description of its ravages. The student of medical history will find this an entertaining volume.

THE SPLEEN AND RESISTANCE. By David Perla, M.D., Associate Pathologist and Bacteriologist, Montefiore Hospital, and Jessie Marmorston, M.D., Associate in Pathology, Cornell University Medical College. 170 pp. \$2.00. The Williams & Wilkins Company, Baltimore, 1935.

Every physician has noted the different degrees of resistance to infections in man and the lower animals. Their different ability to cope with an infecting agent has been ascribed to differences in constitution. The authors have studied the role of spleen in these respects, particularly as regards that of the reticuloendothelium in natural and acquired resistance. The splenic reaction in sepsis is characterized by its softening and increase in size and weight. Its importance in resistance is inferred from a study of the pathologic changes during the course of many infections. Results of such studies in numerous infectious diseases are herein recorded. These changes are due to congestion, cellular infiltration, proliferation of the cells of the macrophage system and phagocytic activity of these cells. The effect of splenectomy on natural resistance is shown to be a definite lowering to spontaneous or induced infections. This is duly discussed as well as relation of the spleen to acquired resistance in later infections. "Compensatory changes following splenectomy reflect a striking activation of the mesenchymal reticular cells and their derivatives throughout the body to increased function and differentiation." This book offers much additional information concerning the spleen and its relations to the animal and human economy.

PUERPERAL GYNECOLOGY. By J. L. Bubis, M.D., F.A.C.S., Consultant in Obstetrics, Gynecologist, Mt. Sinai Hospital, Cleveland, Ohio, etc. 199 pp. \$3.50. William Wood & Co., Baltimore, 1935.

The author expounds an active, sound surgical system for prevention and repair of injuries to the external genitalia and the birth canal, and discusses in detail all gynoplastic work that can be done immediately following labor without abdominal incision, invasion of the peritoneal cavity being left for later time. Opening chapters deal with anatomy and physiology of the parts concerned, and with prenatal care. Conditions in which inflammations and infections of the external genitalia and genitourinary tract are tersely dealt with and treatments outlined. No passive attitude is taken.

Two dozen pages deal with the conduct of labor, and such phases as anesthesia, manual dilatation of perineum or cervix and episiotomy. This leads to the immediate consideration of pathologic changes in the cervix and immediate repair of new and old injuries, even those necessitating amputation of the cervix. Technic in detail is given, and the urge for repair right after labor is reiterated. In like manner are considered injuries and abnormal anatomic conditions making themselves evident after labor in the regions of the urethral orifice, anterior and posterior vaginal walls, perineal body and rectum. Immediate surgery for urethral caruncle, rectocele, cystocele, perineal tears, thrombotic piles and anal prolapse is outlined. Painstaking details are written down in such a way as to guide the novice and stimulate the expert.

Puerperal and postnatal care with stress on the necessity for conscientious and active correction of all pathologic conditions is given with systematic completeness. Final

chapters enable the author to make a very good case for his active attitude, as he presents tables showing morbidity and mortality after labor and after various phases of puerperal gynecologic treatment. This book is recommended to all obstetricians for its elucidations of gynoplastic work and puerperal care. It stimulates in matters where too long a passive attitude has been maintained and gives splendid details on technic of puerperal gynecology.

LA VIOLETTE.

THE NERVOUS PATIENT. A Frontier of Internal Medicine. By Charles Phillips Emerson, M.D., Research Professor of Medicine, Indiana University, Indianapolis. 453 pp. \$4.00. J. B. Lippincott Company, Philadelphia, London, Montreal, 1935.

The author states this book is not for specialists but general practitioners who see organic and mental diseases in their earliest stages. Practitioners of a generation ago treated a mass of patients diagnosed as nervous and neurasthenic. Failure to improve these patients sent them to the irregulars, often to the discredit of regular medicine. Improved methods of diagnosis have placed a large proportion of these patients in the ranks of organic disease responsible for their manifest nervous symptoms. In this volume are considered diseases of various origins, judiciously exposing the nervous manifestations which have so often been wrongly considered for the diseases themselves. Thus are reviewed allergy, migraine, diseases of the eye, ear and nose, neuralgias. Diseases of lungs, gastrointestinal canal and cardiovascular system present symptoms that often mislead one into wrong diagnosis of involvement of the nervous system. There are also chapters on diseases of the central nervous system, psychoneuroses, psychasthenia and hysteria. Neurasthenia is defined as "a well unified anxiety condition, developing as an incident in the previously efficient life of a person otherwise not psychoneurotic, based on some clearly recognized unwelcomed state, physical, social, economic, etc." There are many discussions of the nervous state which will often be helpful in arriving at a correct diagnosis.

A MARRIAGE MANUAL. A Practical Guide-Book to Sex and Marriage. By Hannah M. Stone, M.D. Medical Director of the Birth Control Clinical Research Bureau and of the Marriage Consultation Centers at the Community Church and Labor Temple, New York, and Abraham Stone, M.D., Adjunct Urologist at the Sydenham Hospital, etc., New York. 334 pp. \$2.50. Simon and Schuster, New York, 1935.

The authors state that this volume is offered primarily as a practical guide to sex and marriage, the aim being mainly to deal with individual aspects of sex contact rather than social, ethical or moral problems of sex conduct. The theme is developed in a conversational form with leading questions, whose answers contain information it is desired to impart. Subjects considered are fitness for marriage, biology of marriage, mechanism of reproduction, prevention of conception, problems of reproduction, the art of marriage, sexual disharmonies, health in marriage. Under each of these headings are considered problems that arise in the mind of every individual whether or not marriage is contemplated. Debatable subjects are handled with discretion. Thus, in discussion of contraception the case is stated fairly for and against, and preferable methods to be employed are suggested. Much anatomic and physiologic information is presented that is hazy in the mind of the ordinary layman. Many matters pertaining to sex and sexual relations that many people hesitate to discuss from feelings of modesty, shyness or other reasons are clearly presented in this book.



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It is one of the best among the numerous volumes on sex matters published of late.

LABORATORY METHODS OF THE UNITED STATES ARMY. Edited by James Stevens Simmons, B.S., M.D., Ph.D., Major, Medical Corps, United States Army, Director of Laboratories Army Medical Center, etc. Associate Editor, Cleon J. Gentzkow, M.D., Ph.D., Major, Medical Corps, United States Army; Chief of the Division of Chemistry, Army Medical School. Fourth edition. Illustrated with engravings. Approved by the Surgeon-General of the United States Army. 1091 pp. \$6.50. Lea & Febiger, Philadelphia, 1935.

Shortly after entrance of the United States into the World War a manual was published on the Army's laboratory methods which in subsequent editions has grown to the size of this volume. It represents the contributions of twenty collaborators from various branches of army medical service. Most chapters of this edition have been entirely rewritten in order to keep abreast of advances made since publication of previous editions.

Much material is included beside technical procedures. Different parts cover clinical pathology, chemistry, mycology, bacteriology, rickettsial and filterable viruses, helminthology, entomology, pathology, special veterinary methods and statistical methods, under each of which chapters develop the part under consideration. Since each contributor is a specialist in the line of work which he represents, it is presented with authority. Latest advances in laboratory knowledge are described. Thus sections dealing with protozoology, helminthology and entomology have been expanded and illustrated. New sections dealing with rickettsia and filterable viruses have been added. The laboratory worker will find this volume a valuable contribution to the promotion of this branch of medical knowledge.

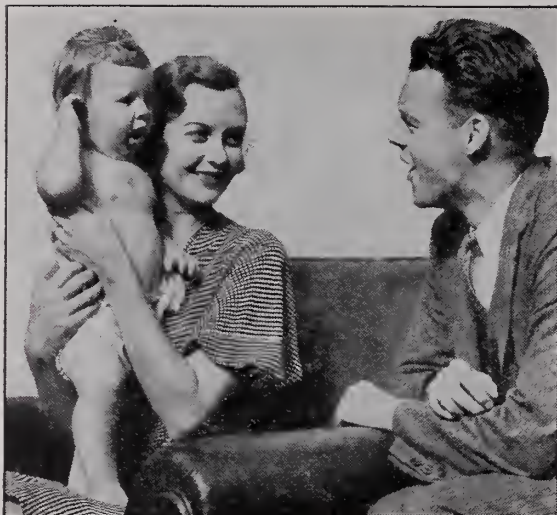
A TEXTBOOK OF CLINICAL NEUROLOGY. By Israel S. Wechsler, M.D., Professor of Clinical Neurology, Columbia University, New York; Attending Neurologist, Neurological Institute and The Montefiore Hospital, New York. Third Edition, Reset. 826 pages with 162 illustrations. Cloth, \$7.00. Philadelphia and London: W. B. Saunders Company, 1935.

This is the third edition of a very excellent neurologic text. The references in the various chapters have been brought up to date. A few new clinic syndromes have been added and changes in treatment have been noted. The chapter on the neuroses is more complete and reflects a comparatively modern attitude toward the so-called functional nervous diseases. This chapter might well be read by every practitioner of medicine with benefit, because it gives a fair summary of more modern psychiatric concepts in a clear and concise manner. The author has added a brief history of neurology, a history which should be familiar at least to those who confine their work to this specialty.

HOEDEMAKER.

INTERNATIONAL CLINICS. A Quarterly of Clinical Lectures. By Leading Members of the Medical Profession throughout the World. Edited by Louis Hamman, M. D., Visiting Physician, Johns Hopkins Hospital, Baltimore. 337 pp. \$3.00. Volume III. Forty-fifth Series, 1935. J. B. Lippincott Company, Philadelphia, Montreal, London.

This volume contains the usual interesting collection of clinical reports and discussions on many subjects under medicine, surgery, ophthalmology and otolaryngology. They are presented by leading clinicians in this country. Among these is a discussion of chronic benzol poisoning by Laurence Selling and Edwin E. Osgood of Portland. This quarterly is one of the most useful and informative at one's command. Perusal of it helps one to keep abreast of medical progress.



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PUBLIC RELATIONS OF MEDICINE *

C. R. SCOTT, M.D.

TWIN FALLS, IDA.

The end and aim of each physician and surgeon is to prevent disease, to cure sick persons, to alleviate physical suffering and mental anguish, and to make life longer, more tolerable and more efficient. If we do less than these things we fail of our purpose and the investment made in our highly specialized education yields loss rather than profit. In fact, there is no adequate compensation for a life time devoted to the practice of medicine except that derived from the satisfaction inherent in the fulfillment of those ends and aims mentioned.

The basic purpose of the medical profession, which we will call medicine, must be fundamentally the same as that of each of its members. The first function of medicine, therefore, is to investigate disease and by the knowledge so gained to prevent, alleviate and cure it. This function medicine has ever fostered and will never abandon. We will deeply resent and unceasingly oppose any vagaries of political economy that interfere with the march of our investigation, the expansion of our knowledge, and its most effective application for the benefit of sick humanity. This is our fundamental platform to which we give adherence before any consideration of the economics of medicine, and any alterations in our methods of doing business that may result from the current agitation for health insurance and

state medicine must measure up to such platform before we will give them cooperation.

The fundamental sciences march on as does medicine. In like manner the economic sciences progress; we welcome their efforts, and offer them our cooperation with the hope that their investigations and experiments will produce results commensurate with those attained in our field. We would point out that advance comes by the trial and error method, and truth will only result from the discard of errors. We would further call attention to the fact that some impractical social reformers, concerning themselves with the affairs of sickness and health, have errors to discard, for they evidently are woefully ignorant as to the factors requisite for the successful treatment of the sick, including the nature and minutiae of the relationship between doctor and patient. Such relationship in its highest ethics and practical workings must be preserved, and we must fight for it. The disruption of this relationship as it has existed would destroy a large measure of the benefit of medicine's ministrations to the sick. Our resistance to this feature of the current proposals for alterations in the set-up of medical practice may seem a defensive act on our part, but we disclaim and renounce that phase of it, if such there be, because far above it in consideration is the fact that it is our function in society to maintain the highest possible standard of medical service. Our organized defense of the sacredly private relations of doctor and patient, and of the freedom of choice therein, is impregnable right. We

* President's Address read before the Forty-third Annual Meeting of Idaho State Medical Association, Boise, Ida., Sept. 9-13, 1935.

must stand for it, and shall in the end firmly establish it, whether after a valiant fight or after muddling through.

The intrinsic nature of the practice of medicine being so highly individualistic is prone to lead us astray by individualism weakening our organization. The time has passed when we can play a lone hand. We have learned team work in the scientific side of our work. We must learn it for the economic side because the determined, organized and generously financed socialistic drive to revamp the manner of the care of the sick in our nation is marching on under a smoke screen of appealing propaganda. It was recently said that, if all theoretical economists were laid end to end, they would reach no workable conclusion. However, their voice is loud in the land and they offer politics a beautiful opportunity to enter the medical field with ill advised legislation.

So we must recognize that it is our obligation to society to protect it against some of the colossal fallacies fostered by impractical theorists. We can only accomplish this by a strong organization loyally adhered to. The organization exists in the setup of local and state societies and the American Medical Association. The preponderance of membership and loyal adherence are up to each of us as to ourselves and our friends in the profession. Do not think that medicine is opposing progress. A pancake cannot impede a steam roller, nor can we hinder economic eventualities. However, the steam roller has a steering gear and we may influence the pilot of social security to preserve those features of medical practice essential to its greatest efficiency for those to whom it ministers. It would seem immaterial to us whether we are compensated by an individual, from an insurance fund or by the state, so long as we are justly compensated and are allowed to apply our science and art at its best. Lay domination and direction of our profession, which would be largely political, is unthinkable and would be unendurable.

There resounds through the land today clamorous resentment of the glamorous presentment of unwise revolutionary reforms by new dealing brain trusters. However, frank and clear thinking champions of the capitalistic system recognize the fact that much of their present distress is in part chargeable to the mistakes and abuses of power by capitalists themselves. It is always the judgment of students of natural science that enduring and improving changes result only from deliberate and comparatively slow evolutionary methods. Let us, accept-

ing the lesson from capital's distress, avoid forced revolutionary alterations in our manner of doing business by clearing up any abuses we may be guilty of to those in a degree in our power during their hours of distress. It is hardly possible that the campaign for state medicine could have gone as far as it has without some fault on our part.

Searching for faults reveals that, whereas even in normal times there are many worthy people to whom adequate medical care is a heavy burden, the leadership of the propaganda against the alleged high cost of medical care has come from prosperous persons who have resented personal experiences of exorbitant fees, and it will continue to come from that group so long as the profession views with complacency the extortion of unfair fees and contributes to it by referring patients to specialists guilty of the practice. We recognize that there are some of us more gifted than the average, and that some by diligence and good fortune have been placed in positions which contribute to an early large experience and the acquisition of superior skill. But we also know that there cannot be the difference in the excellence of services rendered that warrants the raising of a customary fifty dollar fee to one thousand dollars. It is our individual and collective duty to ourselves and to society to frown upon exorbitant fees and to inform the people that equally good care may be obtained for reasonable fees.

Further exploration reveals the fact that the high cost of medical care is usually found not to be in the doctor's fees but in the accessory costs of hospitalization, nursing, roentgenography, laboratory and drugs. But there is nothing to be gained by evading the fact that many of the accessory costs are inordinately high because of the doctor in charge and within his power to moderate. There is a considerable and expensive difference between adequate and luxury care, and all too often luxury care is instituted to impress the families and friends of the sick that the doctor is thorough and up to date, and sparing nothing to relieve and cure the sick friend and loved one. No needful effort should be omitted, of course, but neither should needless expenses be incurred for the aggrandizement of the doctor. The doctor who plays the game this way may put his competitor in the hole but he has put the entire profession including himself in the hole as well.

While it is true that in too many instances medical care is too costly, it is equally true that many

people object to the cost of medical care who can well afford it, and that many others only find themselves unable to pay for it because of needless extravagances for other purposes. But these people join their voices to the chorus of objection that comes from those worthy, frugal, self-respecting persons who are overwhelmed by the high medical costs of major or catastrophic illness, when they seek what they believe to be the best medical care. It is squarely up to us to see to it that these frugal and worthy people get what they need within reason, if we do not wish to suffer state regimentation of our business. It does not fundamentally concern us as a profession how the money is provided for these people, whether by the old-fashioned thrifty saving for the rainy day, by payment in advance into an insurance fund, or by direct dole from the public treasury, so long as we are able to give them adequate care. And even though it be a fact that services accessory to medicine are sometimes needlessly and extravagantly used, such services are often necessary to the best medical care. If the people are to have modern service, it must be paid for just as the automobile, which is more expensive than was the horse and buggy, is a necessity for efficiency and must be paid for.

We can successfully defend the statement that, except for occasional overcharges by a small group of our men, the fees which go into the doctor's pockets are seldom burdensome. It then follows that efforts to control the high cost of medical care are misdirected when aimed at us. Hence, if intrinsic funds are to be applied as a remedy, the application might well be made to the accessory costs by contributions to the hospitals and their allied services. This would require no new elaborate building program, no confusion of new untrained workers, no haven for political appointees, no interference with the time honored way of medical practice. The hospitals are already provided as are the trained workers within them. They need incomes. If the rich who formerly endowed them are to be taxed out of their wealth, let a sufficient portion of those taxes replace the generous endowments of yesteryear.

Still further investigation reveals that few people know anything as to the cost of medical education or medical practice. Details of this would be a redundancy to this group, but it may be permitted to say that we are remiss in failing to inform the public in regard to the matter. They should know that the total initial investment in a new doctor of

medicine averages to be \$20,000 after the completion of high school, and that his normal expectancy of producing years is twenty-five, in which time he should repay the cost of installation, maintain himself and family, continue his education, and provide for his declining years. The people should also know that in like manner and degree the cost of a doctor's equipment and its maintenance has increased many fold in the past two decades. They should also be made to realize that medicine is a profession and not a trade, that a doctor is not only selling his services but is pouring himself into his work in a manner and to a degree that money does not pay for. If the people know these things they will not only not resist just fees, but they will support us in our resistance to the oppression of state medicine as it exists in Europe and as it is being proposed here. Such state medicine historically has and inexorably will reduce our profession to mediocrity and will inevitably result in mediocre services to the sick.

Why is it that to a considerable degree we meet with public antagonism to the things we stand for and promote, even when we are promoting measures for preventive medicine, measures which automatically reduce our own income? Why is there prejudice against our efforts? We must have been inept to have permitted the dissemination of false impressions as to our motives. I believe it is worthy of the best thought of this and every state society and of the American Medical Association to use the best efforts of our best men to establish medicine in a proper place in public esteem. It should be within the scope of this Association to so inform the people of Idaho in regard to public health that they would no longer submit to the most obsolete public health set up existing in these United States, nor to an indifferent administration of the public welfare establishment we now support.

We have, in our consciousness of worthy motives, been rather neglectful of the public understanding of our problems and purposes. And as for defense against insults and attacks we have been like the turtle on his back who never did anything for himself. It is high time that a voice was raised calling the clan to conclave so that we may diagnose our deficiencies, learn to dress our windows better, and launch a purposeful campaign to sell ourselves collectively to the state just as effectively as each of us has had to sell himself to his clientele.

It has been said that the way to meet the problems of the future during these days of eruptive

opinions is not only with intelligence but with character, with which there is no failure and without which there is no success. Surely it can be said that medicine always has and still does instill and require lofty character. It was said that Jane Adams made of Hull House a citadel of compassion that was character. It must always be said of medicine that it is an abounding wellspring of compassion. Then, that medicine has character will be granted by public opinion and continued esteem will ensue. Let us continue freely to render services to the worthy poor for what they can pay and to the worthy destitute without compensation. But by no means let it be thought that we will contribute our services to the destitute, while an extravagant government supports their every other need and at times it seems to desire. Nor need we be bilked by the modern devotees of installment payment extravagance, all of whose income is mortgaged before illness befalls them. They, too, are loud advocates of state medicine.

Medicine must not only foster the provision of adequate care of the sick but must continue its long battle to protect the sick against fraud and quackery from without our profession, and its equally long persistent endeavor to protect the sick against ignorance, inefficiency and duplicity from the ranks of medicine itself. This medicine has been doing by raising the standards of medical education to its present excellence and by stiffening the licensing requirements of the various states, which latter has been difficult but which surely steadily improves. A further effort which medicine should make is the provision for frequent first class post-graduate instruction of academic excellence and practical application to be available at reasonable expense and regular intervals for every doctor. This meeting of the Idaho State Medical Association is a more or less pioneer effort in that direction, instigated as the result of a keen desire by our members for the help they are getting from it.

It is evident that none of the subjects I have touched have been thoroughly considered. Time does not permit nor is the occasion appropriate. The field of medical economics, including health insurance and state medicine, is prompting many new books, and thousands of pages in current professional and lay journals and magazines, as well as hours and hours of talk. I have talked about these things and public health until I have feared Geo. Creel was aiming at me when he mentioned "that indefatigable speaker whose activities have forced

even Rotary Clubs to meet behind locked doors." These topics lead one into endless discussions and acrimonious remarks concerning these changing times. I desire only to speak for medicine by declaring our determination to defend those features of medical practice which we know to be essential to the successful care of the sick against the plans of economic reformers who do not know all that they are talking about.

The American Medical Association through its House of Delegates has stated the position of medicine wisely and well. But their statement is already a confusion to many of the members and needs simplification and elucidation until it can be taught and sold to the every day layman after the manner of the ubiquitous slogans.

The further burden of my theme is that we need better to establish ourselves with the people. It is no easy task to reach the public mind. I can assure you it has been no pleasure to take those measures necessary to "make the front page." I have no thesis to offer at this time and place as to the methods to be used. I do, however, at the end of a year of earnest endeavor to serve my profession and the State of Idaho, wish to leave the thought with you that we need to and easily can improve the public relations of medicine.

SO-CALLED MOSAIC FUNGUS AS INTERCELLULAR DEPOSIT OF CHOLESTEROL CRYSTALS. According to A. M. Davidson and P. H. Gregory, Winnipeg, Manit. (*Journal A.M.A.*, Oct. 19, 1935), when scrapings from the feet mounted by the usual method in potash are examined microscopically for the presence of ringworm fungi, two kinds of fungus-like structures are commonly observed. One kind consists of long, more or less sinuous, sparingly branched threads, which are universally recognized as true hyphae belonging to a dermatophyte. Attempted isolations from such material yield a high proportion of cultures. The other kind of fungus-like structure consists of irregular discrete branching threads, which follow the contours of the epithelial cells. It has been named "mosaic fungus" by Weidman. Since the author's original discovery that the mosaic can be resolved into an aggregation of cholesterol crystals, scales from a number of other patients have been examined and the crystalline nature of the "mosaic fungus" has been amply confirmed. After the scale has been pressed out under the cover glass, most of the crystals are seen in surface view, but in unflattened preparations a number are seen edgewise and the crystalline nature of the elements is then obscured. The crystals are small, seldom larger than 10 microns in length, and transparent. The masses in which they are arranged constitute the irregular angular segments of the mosaic. Cold potash gives the best specimens, but the crystalline structure can also be demonstrated after heating. Mosaics from different patients show considerable variation in the regularity of the crystalline form. The crystals must not be regarded as an artefact incidental to the action of the potash. The mosaic consists of flat rhombic crystals, sometimes with a reentrant angle, resembling cholesterol; it is insoluble in water, slowly disappearing on prolonged contact with strong potash; it is soluble in xylene and other fat solvents; it is found between the cells of the stratum corneum in certain cases of dermatitis of the hands and feet.

THE MORE COMMON PELVIC INFECTIONS THEIR ETIOLOGY, PATHOLOGY, DIFFERENTIAL DIAG- NOSIS, TREATMENT AND PREVENTION *

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The clinical management of these infections is now based on facts and experience, yet there is probably no other gynecologic problem in which our views have undergone such radical revision during the past ten years. Infectious processes commonly encountered in the female pelvis are divided on a pathologic basis into two large groups, salpingitis and cellulitis. Salpingitis usually results from a gonorrheal infection of the fallopian tubes, while cellulitis is most frequently due to a streptococcic infection and is typified by the pelvic inflammation which follows an infected abortion. Consequently, due to striking differences in their etiology, pathology and clinical course, it will be necessary to discuss gonorrheal salpingitis and pelvic cellulitis separately.

SALPINGITIS

In women gonorrhea frequently is restricted to the lower genitalia. At first it involves the vagina, cervix, urethra, Skene's ducts and Bartholin's glands. The infection tends to disappear rather quickly from the vagina and urethra, although it often lingers for months in Skene's ducts, in the cervix and in Bartholin's glands. As a rule the internal os of the cervix acts as an effective barrier to the ascent of infection into the upper pelvic zone, namely into the uterus, tubes, ovaries and peritoneal cavity. However, if the cervix is unduly patent or if organisms are forced upward through the cervix an upper genital infection results.

Gonococci may ascend into the uterus while the patient is menstruating or immediately after a period. During menstruation the cervix is physiologically dilated and the protecting plug of cervical mucus is absent, or is less efficient. Such invasion of the uterus leads to an acute endometritis, i.e., an inflammation of the uterine mucosa, but the endometritis is short lived and ordinarily disappears completely within two months.

From the uterus the infection spreads into the fallopian tubes by direct extension along mucosal surfaces, and sets up a catarrhal inflammation with edema and swelling of the lining mucosa. Frequently the inflammation does not progress beyond such

catarrhal involvement. The fimbriae are also inflamed and become sticky; they may adhere to each other and seal the end of the tube; this leads to the formation of a pyosalpinx or pus tube. If no new infection is introduced, the gonococci soon die, the inflammation subsides, pus is replaced by serum and the resultant dilated tube, filled with clear fluid, is called a hydrosalpinx.

During the acute stage, before the tubes are closed, pus may spill from the fimbriated ends and infect the ovaries, usually in a recently ruptured follicle; from such an involvement an ovarian abscess results. More frequently the inflamed fimbriae become plastered over an infected follicle and a tuboovarian abscess arises. Ovarian abscesses tend to sterilize themselves promptly if given an opportunity, and ultimately result in inflammatory ovarian or tuboovarian cysts.

With the trickling of pus from the ends of the tubes, the pelvic peritoneum is infected and peritonitis results. However, it is characteristic of gonococcal peritonitis to remain localized in the pelvis. In recent years we have observed a subdiaphragmatic involvement in the acute stages of a gonorrheal tubal infection; this manifests itself clinically as a complicating "pleurisy," usually on the right side; it is actually due to an inflammation of the peritoneum over the liver and on the under surface of the diaphragm; it is not pleurisy. We do not know the mechanism for the development of this inflammation over the liver, but we have repeatedly demonstrated its aftereffects by finding fibrous, string-like adhesions between the liver and the abdominal wall or between the liver and the diaphragm. Furthermore, we have had the opportunity of following some patients through an acute salpingitis complicated by so-called right sided pleurisy and then, years later, at abdominal section have found these characteristics anterior liver-surface adhesions.

In the presence of a gonorrheal pelvic peritonitis loops of small bowel frequently become adherent to inflamed tubes, to the ovaries and to the uterus. The sigmoid flexure of the colon and the rectum are often involved and may become adherent to the pelvic genitalia. Sometimes pus accumulates in the cul-de-sac of Douglas, forming a mass behind the cervix, in front of the rectum, and bulging into the posterior fornix of the vagina; this is a pelvic abscess.

With each new, superimposed, gonococcal infection the involvement and thickening of the tubes,

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ovaries, adherent bowel and omentum become more marked; the crippling of pelvic organs becomes more complete, and pelvic adhesions are firmer and more resistant.

Diagnosis. Gonorrheal infection of the internal genitalia usually first manifests itself shortly after a menstrual period. It gives rise to pelvic pain and lower abdominal tenderness; the associated muscle rigidity, as a rule, is limited to the lower half of the abdomen. Some patients complain of right-sided chest pain and of inability to take a deep breath; occasionally a friction rub can be heard over the liver. As has already been said, such pain probably is not pleural but is due to an inflammatory process between the diaphragm and the liver.

No abdominal masses are palpable in the acute stage of the illness. The pelvic examination should be started before the bladder is emptied so that the urethra can be stripped and Skene's ducts can be milked for pus; *smears from these sources may clinch the clinical diagnosis.* Bartholin's glands may or may not be inflamed; the cervix is usually reddened and is often the source of a copious stringy, tenacious, mucopurulent discharge. Smears should also be made from the cervical secretions. Although experience has proven the futility of depending on vaginal smears when one is searching for gonococci, many physicians are still willing to rule out gonorrhea on the basis of a negative vaginal smear.

In the acute stages, palpation of the cervix is painful. Bimanual examination is well-nigh impossible because of the marked lower abdominal pain, tenderness and rigidity. Tenderness is usually exquisite in the vaginal fornices, but at this stage no masses are palpable in the vicinity of the tubes and ovaries. There is usually moderate fever, rarely is it above 101.5° or 102° ; the pulse is not extraordinarily rapid; the patient is comfortable when quiet and does not look particularly ill; she gives no history of chills. (Incidentally, chills and fever in gynecology are characteristic of a streptococcic pelvic cellulitis and of kidney infections.) Vomiting is not conspicuous; frequently there is some pain on defecation. The elevation of temperature usually persists about a week. The pelvic pain and tenderness slowly recede and later one may be able to palpate tender masses in the adnexal regions.

Quite frequently these patients, with acute gonorrheal pelvic inflammatory disease, menstruate too frequently, bleed too much and flow too long. It has been said that such bleeding is pathognomonic of an abscessed corpus luteum.

If one is unable to obtain positive smears either

from the urethra, Skene's ducts or the cervix, and yet because of the nature of the case strongly suspects that it is gonorrhea, the consort must be questioned about recent or remote symptoms of gonorrheal urethritis and prostatitis; furthermore, he should be examined so that his relation to the patient's infection can be accurately ascertained and appropriate treatment can be started on him also.

When fever does not subside in the course of a few weeks and when severe lower abdominal pain persists, one wonders if the underlying pathology really was a gonorrheal infection; however, such a clinical course may be due to a complicating pelvic or ovarian abscess. These patients should be examined occasionally, i.e., often enough to follow the course of the disease, but palpation must be gentle, not only because it is less discomforting, but chiefly because traumatizing an inflamed organ by rough manipulations hinders the normal processes of prompt recovery.

Differential diagnosis. Gonorrheal tubal infections have to be differentiated from pelvic cellulitis, appendicitis, tuberculosis, salpingitis, tubal pregnancy, pelvic tumors with twisted pedicle, diverticulitis and pelvic endometriosis.

1. *Pelvic cellulitis.* The history of recent instrumentation is significant; this may have been an abortion, a full-term delivery, a cauterization of the cervix or insertion of a metal pessary. Pelvic cellulitis is characterized by more fever, 103° to 104° or even higher; chills are typical and the patient obviously is more ill than one with gonorrheal tubal disease. Cellulitis infections may lead to generalized peritonitis; gonorrhea is usually restricted to the pelvis. Cellulitis infections, on bimanual examination, are characterized by brawny induration of the broad ligaments; this is most easily demonstrated on combined abdominorectovaginal palpation. Pelvic cellulitis gives rise to the classical frozen-pelvis, in which pelvic viscera are matted together into a firm or hard mass extending from one side of the bony pelvis to the other; at times this cellulitis may even be confused with pelvic carcinomatosis.

2. *Appendicitis.* The appendix may be secondarily involved in a gonococcal infection of the tubes; under such conditions it is a periappendicitis. Conversely the internal genitalia may be secondarily involved by an acute appendicitis. Right lower abdominal pain may be a conspicuous feature of some cases of tubal disease; however, the usual classical history of epigastric distress, abdominal pain which gradually localizes in the right lower quadrant, of nausea, vomiting and slight fever, is not

the typical story of gonorrheal inflammation of the tubes. Furthermore, most cases of gonorrheal tubal infection, which are erroneously interpreted as acute appendicitis, could have been correctly diagnosed by listening more attentively to the history and by making a careful vaginal examination. It is true that unilateral tubal disease when right sided is often secondary to an appendicitis.

3. *Tuberculosis of the tubes.* The fallopian tubes may be involved, along with the rest of the abdominal cavity, in an acute tuberculous peritonitis; on the other hand, the tubes may be tuberculous and the general peritoneal cavity remain free from infection. The latter type of true tuberculous salpingitis probably results from the scavenger action of the tubal fimbriae in picking up tubercle bacilli, spilled into the abdominal cavity from a ruptured caseous mesenteric lymph gland. Tuberculosis is the final diagnosis in less than 5 per cent of the fallopian tubes removed at operation. Ordinarily it is well-nigh impossible to make a preoperative diagnosis of tuberculous tubes. Gonorrheal salpingitis frequently is complicated by too much uterine bleeding; tuberculous salpingitis, in typical cases, is accompanied by an absence of menstruation. Both tuberculous and gonorrheal salpingitis are primarily an inflammation of the lining of the tubes, i.e., endosalpingitis; in tuberculosis the bacteria descend from the peritoneal cavity, while in gonorrhea they ascend from the cervix via the uterus.

4. *Tubal pregnancy.* Probably there is no other diagnosis in gynecology so frequently missed as tubal pregnancy. Too often the diagnosis is made clinically but tubal infection is found at operation, and frequently tubal infection is diagnosed when an ectopic pregnancy is found. The classical picture of a missed period followed by vaginal bleeding, severe one-sided lower abdominal pain and syncope, along with the presence of a unilateral pelvic tumor mass, is the exception, not the usual story. Tubal abortion is even more confusing than an acute rupture. Tubal abortion is usually attended by low grade fever and a slightly elevated leucocyte count, but there is only moderate anemia. Adnexal masses due to tubal pregnancy may be painless; in my experience most of them have been tender.

There may be a mass behind the uterus, a pelvic hematocele; with gonorrheal infection there is sometimes a pelvic abscess; occasionally it may be impossible to make an accurate differentiation until the cul-de-sac is aspirated or explored. If pus is obtained, the diagnosis of infection is confirmed; if

old blood is found, undoubtedly a tubal pregnancy exists.

5. *Pelvic tumors with twisted pedicles.* Infrequently, one is confronted by an acute lower abdomen due to the twisting of a pedunculated uterine fibroid or to the twist of an ovarian cyst. The pain is of sudden onset and not infrequently follows some unusual physical activity; abdominal tenderness, rigidity and muscle spasm are present; but there is no lower genital evidence of infection and the finding of a sizable pelvic tumor mass, in the earliest stages of the illness, eliminates an acute tubal infection with almost absolute certainty.

6. *Diverticulitis.* Diverticulitis occasionally is confusing. However, diverticula of the large bowel are more frequently observed in older individuals and gonorrheal salpingitis is primarily a disease of young women.

7. *Pelvic endometriosis.* This most interesting clinical entity is not recognized by the majority of physicians. It develops in the following manner: Sometimes bits of menstrual debris find their way into the pelvic cavity as a result of *retrograde* menstruation; such back flow of menstrual blood is made possible when the uterus is retrodisplaced, also in the presence of obstructive lesions in the uterine canal such as fibroids and strictures which prevent free drainage of menstrual blood from the uterus into the vagina. These fragments of uterine mucosa, normally present in menstrual flow, implant themselves on the pelvic peritoneum, on the ovaries and on the bowel; they grow, they swell and they menstruate each month just as the uterus does; they form tiny blood cysts which may rupture and seed new crops of endometrium throughout the pelvic cavity. Menstrual blood is irritating and consequently these blood cysts are soon surrounded by firm, fibrous adhesions. Pelvic endometriosis is found in women with patent fallopian tubes; it is commonly associated with retroflexion of the uterus; it produces firm adhesions which cause the uterus to be fixed in its retrodisplaced position. Chocolate cysts filled with syrupy chocolate-colored old blood are found in the ovaries; these cysts rarely become larger than one's fist and are so firmly adherent that they cannot be removed without tearing the wall and spilling the cyst contents.

Women with pelvic endometriosis are usually sterile; they frequently have fibroids. The pathognomonic symptom of endometriosis is *acquired* dysmenorrhea, i.e., a dysmenorrhea which starts during adult life and is characterized by severe pelvic and rectal pain occurring both before the menstrual

periods and during menstruation. Frequently the lower abdomen is tender during the premenstrual and early menstrual days; there may be slight fever and the leucocyte count is often elevated temporarily. Tender nodulations in, along with thickening of the rectovaginal septum and uterosacral ligaments, are almost diagnostic of pelvic endometriosis. These cases are frequently confused with pelvic infections.

TREATMENT

The logical and accepted treatment of any infection embraces careful observation of the following cardinal principles: (1) rest, (2) free drainage, and (3) avoidance of reinfection.

Therefore, *the treatment of acute gonorrheal salpingitis is expectancy. Do not operate.* The patient should be put to bed and kept at absolute rest; a therapeutic heat cradle is used over the lower abdomen for comfort and to promote healing; she is supplied with sufficient salicylates and codeine to keep her comfortable. Fluids are forced to a moderate degree and the food intake is governed chiefly by the patient's wishes. It appears advisable to elevate the head of the bed on six inch blocks to help localize infectious processes in the pelvis. *Vaginal douches are contraindicated*; at best they give only slight relief because of their warmth and cleansing effects and they are frequently responsible for the persistence of a pelvic infection because they may force infected debris from the vagina and cervical canal upward into the uterus. In the same way douches may be responsible for the patient re-infecting herself.

Active treatment of the acute lower genital gonorrhea is also contraindicated; particularly is this true of local treatments in the cervical canal. I am convinced that a considerable proportion of women with gonorrheal tubal disease owe their salpingitis to overzealous treatment of the cervix which forced infected material from the cervical canal into the uterus. Vaginal tampons are dangerous; we try to promote free drainage of secretions from the uterus by elevating the head of the bed and by keeping the vaginal and cervical canal open, not plugged with filthy tampons.

Some pelvic surgeons have not yet awakened to present-day practices of nonoperative treatment of acute gonorrheal tubal disease. However, we enthusiastically recommend and practice conservative management, for the following reasons: (1) Gonorrheal infection of the tubes is a self-limiting disease. In the absence of reinfections, either from the consort or from the cervix, gonococci disappear from the tubes within two or three weeks after the fever

subsides; consequently *gonorrheal tubes are not a focus of infection.* (2) Eighty-five per cent of all women who have had an acute gonorrheal infection of the fallopian tubes become asymptomatic and never require operation. (3) Fully 20 per cent of this group, if not reinfected, subsequently become pregnant. (4) if women are operated on during the acute stages of the infection, organs are sacrificed unnecessarily and not infrequently both ovaries are removed; also in acute stages there is great danger of seriously damaging adherent loops of bowel. (5) The operative mortality, although slight, is still a factor worthy of some consideration. (6) There is a logical answer for those who advocate early operation because they insist that it will have to be done sooner or later, so why not now. Women do not have "flare-ups" of gonorrheal salpingitis. The infection is self-limiting and gonococci tend to disappear from the tubes within a few weeks after the patient is afebrile. *Consequently the term "flare-up" is a misnomer.* Recurrent tubal infections result from a new, fresh infection acquired in one of two ways, e.g., either from unprotected intercourse with an infected consort or because infected material from the cervix is forced into the uterus by high pressure vaginal douching or by indiscreet treatment of the inflamed cervix. Consequently, if reinfection is avoided, there is an excellent outlook for a clinical cure and experience has shown that 85 per cent of these patients will not need an operation.

Some, about 15 per cent, continue to have menstrual disorders and pelvic pain. *For this small group operation ultimately becomes necessary* but the symptomatic improvement, following an acute gonorrheal infection, continues for many months; consequently, we arbitrarily say that no patient who has had acute gonorrheal infection should be operated on until at least eighteen months have elapsed. The indications for operation after this long interval are: (1) *pain* as a result of adherent viscera, particularly loops of bowel, the uterus, cystic adherent ovaries, a tuboovarian cyst or a hydrosalpinx, and (2) *bleeding*, usually excessive or prolonged menstruation as a result of disturbed ovarian function, and (3) *sterility*, rarely, and only when the patient understands that the chance for relief of her sterility by operation is not greater than 25 per cent. We do not urge operations to open occluded tubes; however, if the patient fully realizes the low percentage of favorable results and is anxious that the operation be undertaken, then we are willing to do it.

If one palliates for eighteen months or longer, he then operates for the healed residues of a previous gonorrheal infection; he is not operating to remove a focus of infection which might be responsible for systemic disease. After waiting for a year and a half, unhealthy structures can be removed without necessarily sacrificing both ovaries. However, if both tubes must be excised, it is best to remove the body of the uterus also. Such partial or subtotal hysterectomy is advisable because these uteri tend to bleed, become displaced and often cause pain in later years. Since the uterus' sole function is to foster pregnancies, after bilateral salpingectomy it becomes an organ devoid of function and should be removed.

Occasionally, in the acute stages of gonorrheal salpingitis, one may be unable to differentiate between appendicitis and tubal disease and an operation is performed. Under such conditions the appendix is removed but catarrhal inflammation of the tubes is not to be considered an indication for salpingectomy, although pus tubes probably should be removed. Furthermore, during the acute stages of the infection an accumulation of pus in the cul-de-sac may necessitate drainage vaginally, but we do not recommend that laterally placed tubo-ovarian abscesses be drained through the cul-de-sac. An ovarian abscess may become secondarily infected by the intestinal flora; because of its failure to respond to expectant treatment, removal may become necessary.

Our experience with vaccines, with the injection of foreign proteins such as milk and aolin, and with kindred treatments of gonorrheal infection has not been encouraging, and we do not advise their use. In recent years the Elliott treatment, a method of supplying continuous heat to the vagina and pelvic tissues, has gained great favor and undoubtedly merits favorable consideration.

We are convinced that the important principles involved in the treatment of gonorrheal tubal disease are: (1) keep the patient at rest, (2) do not operate, and (3) avoid reinfection.

A word about the prevention of gonorrheal salpingitis. Patients with acute lower genital gonorrhea should receive a minimum of active treatment during the first six weeks of the infection. They should be encouraged to stay in bed during the first and second menstrual periods after they contract the gonorrhea. They must not use douches and must be cautioned to wear sanitary perineal pads, not plug the vagina with cotton. The physician should not poke medicated swabs into the cervix for fear

of transplanting bacteria from the cervical canal into the uterine cavity. No cervix should be cauterized until one is sure that the leucorrhea is not due to acute gonorrhea. Ideal treatment of the woman with a neisserian infection includes treatment of the husband or consort as well; furthermore, any man or woman who has had gonorrhea should not be permitted to have unprotected sexual intercourse for at least a year after organisms can no longer be demonstrated in smears.

PELVIC CELLULITIS

Pelvic cellulitis is usually caused by an invasion of streptococci. Consequently, it is more serious, is more protracted and is a more stubborn infection than gonorrheal salpingitis.

It is the type of inflammation which occurs in puerperal sepsis and in infected abortions; it may follow the repeated insertion of contraceptive gold-stem pessaries or the cauterization of the cervix of a retroflexed uterus. It is also seen as a rather frequent companion of carcinoma of the cervix and may be a postoperative complication of extensive pelvic surgery.

Streptococci are permitted to invade the cervix, the lower uterine segment or the fundus of the uterus as a result of trauma to these structures; such trauma may be produced by repeated intrauterine attempts to induce an abortion. In contrast to the activities of the gonococcus, streptococci pass through the mucosa and invade the musculature of the uterus; they penetrate tissue spaces and travel along lymphatics; in other words, they do not restrict themselves to mucosal surfaces, as do gonococci. Consequently, an early stage of the invasion is a metritis, an inflammation of the musculature of the uterus. The organisms then spread into the broad ligaments, where a phlegmonous inflammation results, and brawny thickening of the parametria is typical of a streptococcal pelvic infection.

In the broad ligaments, veins are invaded and in consequence thrombophlebitis and blood stream infections, sepsis and septicemia are not at all uncommon. In a well developed acute pelvic cellulitis the tubes and ovaries are attacked, but the tubes are invaded from their serosal surfaces and the resulting inflammation is a *perisalpingitis*; this is to be contrasted with the *endosalpingitis* characteristic of gonorrhea. Streptococci may lodge in the ovaries, particularly in recently ruptured follicles where the existing blood clot provides an ideal medium for their growth; and in consequence, abscesses arise. With the spread of infection through the broad ligaments, peritoneal surfaces are soon involved and

the entire peritoneum may become infected. Consequently, the peritonitis accompanying a streptococcic infection is often a generalized process, in contrast to the localized pelvic peritonitis typical of gonorrhea.

The inflammation of pelvic structures is comparable to the process seen in an arm or leg afflicted with a streptococcic infection; there is brawny thickening of tissues, slow resolution of the inflammation and *infrequent* abscess formation. Furthermore, the infection may spread like wild-fire, just as it does in an extremity, and in consequence the morbidity and mortality are relatively high.

Pelvic cellulitis tends to be resistant to treatment, even under the most favorable conditions. It persists for weeks, even for months; the bacteria, instead of disappearing promptly as they do in a gonorrheal infection, may linger quiescent in the pelvic tissues for years, even as long as ten or fifteen years after the original infection had been sustained.

Diagnosis. These patients usually are quite ill; very promptly they show the constitutional evidences of a severe infection; they may be cyanotic, the pulse is rapid; they usually experience chills and high temperatures up to 104° or 105°. It has been wisely stated that the burden of proof is on anyone who says that a pelvic infection, complicated by chills and high fever, is gonorrhea.

The abdomen may show signs of a generalized peritonitis or the pain, tenderness and muscle spasm may be localized in the pelvis. There is usually a thin, sanious uterine discharge; the cervix is softened; the uterus is somewhat enlarged; the pelvis is extremely tender and broad ligament thickening may or may not be felt. In classical cases this broad ligament induration is absolutely diagnostic, forming wings of thickened parametria extending outward from the uterus to the bony pelvis, this is a so-called frozen pelvis.

Pelvic examinations should be made infrequently because the acutely inflamed tissues are rendered more susceptible to bacterial invasion when bruised by rough or frequent manipulations. Each examination materially affects the patient's course, as is evidenced by increased fever and more local discomfort. The leucocyte count is usually high and we believe that a low leucocyte count, in the face of a streptococcic infection, is of grave prognostic import. An anemia often develops rather rapidly.

Differential diagnosis. The differential diagnosis of pelvic cellulitis has to be made from gonorrheal salpingitis, appendicitis, tuberculous infection of

the tubes, tubal pregnancies, pelvic tumors with twisted pedicles, diverticulitis and pelvic endometriosis. These have all been discussed previously.

TREATMENT

The treatment of acute pelvic cellulitis is medical and expectant. The patient must be kept quiet and her general condition jealously guarded and carefully maintained at as high a level as is possible.

She must receive enough sedative to keep her comfortable. Douches are contraindicated because of their tendency to force infected material into the uterus. Generalized abdominal heat, either in the form of Priessnitz dressings, electric pads or preferably a therapeutic heat cradle, should be used almost continuously, because it has been proven that continuous heat is tremendously helpful in combating any serious infection.

The Elliott treatment is undoubtedly of great value. The Elliott machine is an ingeniously constructed apparatus which pumps a continuously circulating current of hot water (110° to 125° F.) through a closed system into a thin rubber bag which distends the vagina; thus an increased local temperature is maintained about the uterus and the broad ligaments over long periods of time. The pressure and temperature of the water are under absolute control.

Blood counts must be followed closely because these patients tend to become anemic, not so much from the actual loss of blood vaginally, as from the devastating inroads of the streptococcic infection. Transfusions are frequently necessary and should be repeated as often as the patient needs them. Complications are met as they arise.

Even though the patient is bleeding and you believe that the uterus still contains retained membranes, a curettage must not be performed because the trauma of such manipulations may permit more bacteria to penetrate the natural barriers which the uterus has thrown up to restrict their progress. If fragments of placenta present themselves at the external os, they can be gently lifted out with ovum forceps. Foreign bodies, such as pessaries, should be removed from the cervix.

Occasionally an abscess develops in the cul-de-sac of Douglas; if so, it should be drained vaginally but one must be quite certain, from observing the patient's clinical course and from repeated and gentle pelvic examinations, that he is dealing with a fluctuant, rather than a brawny mass. Occasionally abscesses persist in the ovaries and have to be removed but for the most part pelvic cellulitis infections must be treated expectantly. *Surgery is not*

only contraindicated but it is extremely hazardous. Surgery has nothing to offer which medical treatment cannot duplicate and it does entail the tremendous risk of opening new avenues to invasion and of spreading the infection to previously uninvolved structures. The mortality from abdominal operations on patients with acute pelvic cellulitis is astonishingly high. Tying off pelvic veins, to prevent the spread of infection, is a useless gesture. Removing the uterus because it is the source of infection is foolhardy, since the infection has already spread far beyond the uterus when a cellulitis occurs; furthermore, the uterus will drain and sterilize itself and return to normal much more rapidly than the parametrial tissues.

The physician may be continuously nagged by friends and relatives who urge him to do something surgically to hasten the patients recovery; it is difficult for the laity to understand why a patient with peritonitis is not operated upon immediately and it is hard to convince them that the only sensible treatment is "watchful expectancy." The present-day American wants action and he has to be constantly and continuously sold on the value of expectant care so that he will cooperate in the treatment of his wife, daughter or sweetheart. Pelvic cellulitis may drag on for months and during all of that time the patient needs careful medical supervision, not surgery.

As the inflammation progresses, pelvic adhesions develop; tubes, ovaries, uterus, loops of small bowel, sigmoid and rectum may become matted together. The adhesions following a streptococcal infection are unusually tough, fibrous and resistant; this is in contrast to the fragile, easily broken adhesions typical of a gonorrheal infection. Loops of bowel may become fixed in positions where their function is altered; this may lead to pain and symptoms of partial obstruction. The ovaries may be seriously crippled and function so abnormally that irregular, profuse uterine bleeding occurs. These patients may or may not be sterile; the tubes usually are not closed except by the more severe infections.

If, after years of expectant care, the patient continues to have pelvic pain, uterine bleeding or disturbed function of the pelvic viscera, then she may have to be operated on, but only for the *healed residues of the pelvic cellulitis*. When operation is advised, the surgeon must remember that there is a considerable risk involved because of the probable presence of viable streptococci; by spreading them to new fields he may cause a long latent streptococcal infection to become active again. Further-

more, when operating for the residues of a streptococcal infection, one must be more radical than when he operates for the residues of gonorrhea. Streptococci damage structures more severely than do gonococci. Consequently, although it is usually possible to save ovaries when operating for gonorrheal residues, they frequently have to be sacrificed in the face of streptococcal residues. Occasionally an ovarian abscess persists over a period of months and one may have to drain or remove such a focus of infection.

PREVENTION

Upper genital zone involvement may be prevented by encouraging rest during the acute phase of a lower genital infection, by insisting that patients stay in bed or that they avoid strenuous exertion, particularly during menstruation. The incidence can further be decreased, if physicians are not too zealous in their treatment of infected cervixes. Some women are infected by pushing contaminated material from the cervix into the uterine cavity when medications are applied to the cervical canal. *Vaginal douches are dangerous* and we are certain that many women infect themselves by forcing contaminated material from the cervix into the uterus, while douching. The maintenance of absolute asepsis and the reduction to a minimum of vaginal examinations and instrumental manipulations are all of paramount importance in the prevention of infections after childbirth.

The prevention of infections after instrumental abortion is most important. You realize, of course, that most women who submit to an instrumental abortion do not develop a serious infection. This is a curious fact but, if one analyzes the cases which do become infected, he finds that most of them have had the uterus invaded repeatedly. From a practical point of view we know that it is impossible to invade the uterus, for example to perform even a diagnostic curettage, without setting up a certain amount of endometritis. However, until we perforate the uterus or badly maul and traumatize the mucosa, the patient does not develop a clinical infection after the usual curettage; she is able to overcome this mild infection and nature produces a barrier of leucocytes and tissue-wandering cells which effectively prevent the invasion or spread of bacteria beyond the endometrium.

In the face of a pregnancy, the introduction of organisms means that the uterus becomes a veritable culture tube, filled with an ideal medium for the growth of bacteria, but the body is able to overcome even that much infection without serious con-

sequences. Trouble ensues, however, if the abortionist or the honest physician, fearing that the products of gestation have not been completely expelled, decides after several days that further instrumentation, either curettage or packing, is necessary; he enters an infected field, is likely to break down natural barriers with his curet and permits streptococci to invade and spread like wild fire; in other words, *the prevention of pelvic cellulitis is largely a matter of knowing how to treat abortions. They must be treated expectantly. They should not be curetted.* Because women are reticent to betray an abortionist, one has to assume that every miscarriage has been induced instrumentally and consequently is infected. Since all abortions are potentially infected, I am sure you will agree that the infection should not be aggravated by introducing a curet.

Experience has taught us that *spontaneous abortions stop bleeding without surgical interference and that instrumental abortions dare not be curetted for fear of producing a serious infection.* Patients do not bleed to death after abortions. Of course, if there are fragments of placenta incarcerated in the cervix, they may be gently lifted out with forceps but the uterine cavity must not be curetted and above all things *it must not be packed.* Introducing packs stops natural drainage, and free drainage is of cardinal import in the treatment of any infection. Occasionally a patient who has had an abortion continues to bleed over a period of weeks but the great majority of them, which are not induced, stop bleeding in a week or ten days. If the bleeding continues for two or three weeks and there is no fever and no leucocytosis, then gentle curettage may be performed with impunity, but in practice this is rarely necessary. Fever and leucocytosis indicate that infection is present and it is not only unwise, but inexcusable, to curet under such conditions. *If the bleeding is profuse and a serious anemia develops, then the patient should be transfused but not curetted.*

We have learned from experience that retroflexion of the uterus predisposes to the development of a pelvic infection after cervical treatments such as cauterization and diathermy. Consequently, retroflexion of the uterus should be considered a contraindication to the use of the cautery in the treatment of leucorrhea and eradication of endocervicitis.

In Chicago, during the past decade, we have seen many instances of pelvic cellulitis due to the wearing of contraceptive goldstem pessaries. Not a few of these cases have proven fatal. Such methods of

contraception cannot be condemned too vigorously; others are more simple, more efficient and are free from all danger.

Pelvic cellulitis is a frequent complication of carcinoma of the cervix, because most cancers of the cervix are infected with streptococci. This accounts in part for the high mortality which follows the radical abdominal operation for cancer of the cervix. It also accounts for confusion at times in predicting the prognosis; not infrequently it is almost impossible to distinguish between an associated pelvic cellulitis and an actual extension of cervical cancer into the broad ligament tissues.

CONCLUSIONS

The two commonest types of pelvic infection are gonorrheal salpingitis and postabortive cellulitis. In acute stages both must be treated expectantly, i.e., by supportive medical measures.

Gonorrheal salpingitis subsides spontaneously. If one waits for at least a year and a half and then operates only for the symptoms producing residues of previous gonorrheal infection, he will observe that not more than 15 per cent of patients who have had acute salpingitis ultimately require surgery.

In the prevention of gonorrheal salpingitis the following suggestions merit your consideration:

Acute lower genital gonorrhea should not be treated actively for fear of forcing infected debris through the cervix into the upper pelvic zone; vaginal douches are contraindicated for the same reason; the consort should be examined and his infection eradicated; both patient and consort should be instructed that condom protection is absolutely necessary for at least a year after gonococci are no longer demonstrable in their discharges.

Pelvic cellulitis, due to streptococci, is a more serious infection. In acute stages it is characterized by chills and fever; when the inflammation is well developed a frozen pelvis is the pathognomonic finding on bimanual examination. The disease subsides slowly; bacteria tend to linger for years in the pelvic tissues and operation at any time is hazardous because of the likelihood of awakening latent streptococci. The incidence of pelvic cellulitis will be reduced, if one practices scrupulous aseptic technic at deliveries and avoids vaginal examinations and manipulations during labor. Furthermore, we must remember that all miscarriages are potentially infected; they must not be curetted. Women who have had instrumental abortions do not bleed to death; if they are not packed and are not curetted, they will not develop serious infections.

104 South Michigan Avenue.

THE FEMALE SEX HORMONES

ORIGIN AND THERAPY*

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During the past few years the specialty of gynecology has outgrown its former boundaries. The specialist or the general man who pretends to practice in this field must be more than a pelvic carpenter. He must absorb some of the knowledge of the endocrine factors, gained from recent researches as applied to the functions of the female generative organs and be prepared to apply this knowledge as intelligently as possible to the treatment of the functional disorders in this field. I will not attempt to present a comprehensive paper on the endocrine substances or hormones which have to do with menstruation, ovulation and pregnancy. I will only state briefly some noncontroversial conclusions which have resulted from recent researches, facts which anyone attempting to practice a rational endocrine therapy ought to know.

The ovary at birth contains in embryonic form all of the structures which function in later life. With the onset of puberty, the primordial follicles, which are laid down at birth, begin to develop into the graafian follicles which nourish the developing ova. With the rupture of the graafian follicle and the extrusion of the ovum, the graafian follicle changes into the corpus luteum. In this process substances called hormones are formed which, acting through the blood stream, activate the uterus, producing menstruation and initiating the changes in the organs of the body which are characteristic of puberty.

Normally, from puberty to the menopause there is a recurring cycle of events, consisting of the maturing of the graafian follicle, its rupture and the extrusion of the ovum and the development of the corpus luteum and its recession. These changes in the ovary are synchronous with changes in the uterus, resulting in menstruation, these uterine changes being actually produced through the influence of activating substances or hormones elaborated in the ovary. From the graafian follicle there is produced a hormone which is called folliculin or estrin. This substance, produced by the graafian follicle and influencing the uterus through the blood stream, produces congestion of the uterine endometrium with proliferative changes, which is the first stage in the preparation of the uterus for the reception of the ovum. With the extrusion of

the ovum, the graafian follicle changes into the corpus luteum which continues to produce estrin but which is called progesterin. This hormone, progesterin, acting through the blood stream, sensitizes the endometrium, producing final changes in the endometrium which are necessary for the implantation and nourishment of the ovum and the development of the uterus incident to the continuation of pregnancy.

If the ovum in this cycle of events, in passing down the fallopian tube, happens to meet a friendly spermatozoan and become fertilized, it becomes implanted in the prepared endometrium and pregnancy results. The corpus luteum of pregnancy and the continued influence of its specific hormone, progesterin, are necessary to prevent exfoliation of the endometrium and to protect the fetus during the continuation of pregnancy. If, however, as is more often the case, the ovum is not fertilized, it dies. The corpus luteum becomes atrophied and ceases to function, and simultaneously there is an exfoliation of the endometrium of the uterus called menstruation. It is easy to see that, if the ovary fails to function and there is not produced the ovarian hormones, estrin and progesterin, neither menstruation nor pregnancy can occur.

It has been demonstrated, however, that it takes more than a normal ovary and a normal uterus to produce normal functions. The endocrine function of the ovary is controlled by the anterior pituitary. If this is removed surgically or is destroyed by a tumor growth as in acromegaly, or has never developed, as in certain congenital conditions, ovarian functions cease or are never initiated. I will not attempt to go into the anatomy and the physiology of the pituitary except to state that, besides a hormone necessary to body growth and hormones affecting muscular contractions, represented by pituitrin and pitocain and hormones activating other endocrine glands, there is a hormone elaborated by certain cells of the pituitary which is necessary to activate or maintain normal functions of the ovary. This pituitary hormone has been named prolactin. Animal experimentations confirm these observations on the function of the anterior pituitary estrogenic hormone. Anterior pituitary, with its hormone, prolactin, introduced into immature animals by transplantation or injection, may bring about early maturation and ovulation, and into senile animals, according to some investigators, is said to rejuvenate their sexual apparatus, restoring menstruation and again making pregnancy possible.

*Read before a Meeting of Tacoma Surgical Club, Tacoma, Wash., May 19, 1935.

The estrogenic substances, therefore, which most concern us in producing a normal balance of the generative functions, are the ovarian hormones, estrin from the graafian follicle and corpus luteum, progesterin from the corpus luteum, and prolactin from the anterior pituitary which activates these other two. Added to this, the thyroid gland hormone, thyroxine, is important as its function is to directly stimulate cellular activity throughout the body. Lack of sufficient thyroid may lead to adiposity and diminished function of the sexual apparatus, and overfunction of the thyroid may lead to perversions in other ways.

Theoretically, therefore, it would seem that, if we had normal sex organs to deal with, we could correct all of the functional disturbances and could bring about normal growth in certain abnormal sex organs by a proper balanced administration of the hormones of the ovary, anterior pituitary and thyroid. There are several reasons, however, why it is difficult to do this. The endocrine picture is really more complicated than this and it is usually difficult to make an accurate diagnosis of the endocrine unbalance behind these functional disorders. It is difficult to determine the method of administration, whether oral or hypodermically, to best maintain their potency and produce therapeutic results. Dosage is hard to determine, and accurately standardized preparations may be difficult to obtain. Intensive research, however, has to some extent corrected this last objection. The pharmaceutical houses are now flooding the market with a swarm of estrogenic hormone products, many of which are accurately tested and standardized in terms of rat units and are fairly reliable, if the confused doctor is smart enough to pick them out and administer them according to carefully worked out indications.

I will not go into detail regarding the distribution of these substances in the body, but it is well known that most of these hormones used for therapeutic purposes are not obtained directly from the endocrine glands which produce them but are picked up from the various fluids and tissues of the body. There are, however, several preparations obtained from the ovary itself. Examples of these are ovarian substances (Parke-Davis & Co.), ovacoids (Reed and Carnrick), agomensin (Ciba) and many others. These are therapeutically useful because they contain the hormone estrin. Progesterin can be obtained only from the corpus luteum. Examples of corpus luteum preparations are: extract corpus luteum, lipo-lutin, sistomensin and others.

Theoretically the therapeutic action of these preparations should be the same as the specific corpus luteum hormone progesterin, among which functions are protecting the ovum in preventing abortion, checking hemorrhage and excessive flow. These corpus luteum preparations, however, cannot be standardized. They actually contain only a small quantity of progesterin and, in spite of claims of wide therapeutic value, it is doubtful if they have any potency or value except in the hands of an optimistic doctor in improving the psychology of the patient. This being the case, corpus luteum preparations are entitled to no further consideration in this paper.

Estrin, however, can be obtained more readily and in large amounts from the urine of pregnant women, from placental tissue and amniotic fluid and other sources in the body. Theelin is a Parke-Davis preparation of estrin from pregnant women for hypodermic use. Theelol is a preparation for mouth medication from the same source. Plestrin solution is a preparation of estrin obtained from the placenta. Amniotin (Squibb) is the hormone estrin obtained from the amniotic fluid of cattle. There are other preparations of the hormone estrin too numerous to mention.

In order to obtain the anterior pituitary sex hormone prolactin fresh extracts of the anterior pituitary may be used. They are somewhat unstable and cannot be obtained in large quantities for therapeutic use. These preparations are usually in tablet form for oral administration. Antuitrin extract and antuitrin are preparations of the extract of the whole anterior pituitary, containing the growth-producing as well as the estrogenic hormone. There is obtained from the urine of pregnant women an estrogenic hormone, probably originating in the anterior pituitary, almost identical with that obtained directly from the gland and producing the same therapeutic effects. This is the substance in the urine giving the positive Aschheim-Zondek test. Antuitrin S (Parke-Davis) and follutein (Squibb) are examples of commercial preparations of this hormone.

These preparations which I have mentioned represent only a few of the swarm of pharmaceutical preparations on the market. Nearly all of these products are standardized in terms of rat or mouse units, one unit being the amount of the hormone necessary to bring about certain definite sex reactions in these animals. The practitioner, however, who attempts to make use of these products therapeutically

peutically, encounters some difficulties. High pressure salesmanship enters into their distribution. Probably too many of us get all of our endocrine information from pharmaceutical houses. Some of the research laboratories associated with these institutions have made outstanding contributions to our knowledge of these products. Information given out, however, is likely to be clothed in too much optimism.

Few of us have the patience to figure out dosages in rat units and apply intelligently in therapy, and then, the female rat and the female human are two different kinds of animals and may not react in just the same way. The clinical diagnosis of the exact nature of the endocrine deficiency is not often easy. Laboratory tests help but have their limitations. Basal metabolism helps us to determine thyroid function. We are all familiar with its interpretation and its limitations. The Frank and Goldberger test, using white mice as reactors, is used to determine the estrin content of the blood which, properly interpreted, is an index of ovarian activity, and the Aschheim-Zondek reaction on white mice demonstrates the anterior pituitary sex hormone prolactin in the blood, which helps to determine the functional activity of the anterior pituitary. Both of these latter tests, however, are expensive to the patient, difficult of interpretation and have not up to date been of much practical value to the general man.

Up to this point this paper has discussed the sources of the important estrogenic hormones and some of the commercial preparations available for therapy. These are generally accepted facts. In discussing details of therapy, however, we are entering a speculative and controversial field.

A comprehensive discussion of the therapy of the functional disorders associated with the female generative organs would demand, first, a consideration of the mechanical factors as malpositions, and of infections as endocervicitis, metritis and salpingitis. These conditions may result in ovarian sclerosis with failure of normal rupture of the graafian follicle and extrusion of the ovum, leading to the production of ovarian cysts and other pathologic conditions interfering with the normal cycle of hormone production with resulting menstrual disturbances.

A discussion of these factors is outside the scope of this paper. I am not going to refer to them except to state that, if these pathologic conditions exist, our first duty is to correct them as far as

possible. I will mention some of the functional disorders and the endocrine therapy suggested for their relief. I will not attempt to go into the intricacies of dosage or methods of administration.

Growth deficiency, with lack of development of the sex organs, with delayed puberty and amenorrhea in the female, is due to lack of anterior pituitary sex hormone with secondary ovarian deficiency. It is reasonable to treat this by giving some one of the preparations of the whole anterior pituitary, represented by anterior pituitary extract or antuitrin, which contains both the growth producing and the estrogenic hormone, and to supplement this by anterior pituitary hormone obtained from the urine of pregnant women, examples of which are antuitrin S (Parke-Davis) and follutein (Squibb) and others. In addition to this, thyroid therapy is employed as indicated. Authoritative opinion on the results of endocrine therapy in these cases is not in accord, and cases reported by members of this group are too few to justify conclusions, but it is probable that some good and even spectacular results have been obtained in this class of cases.

Functional amenorrhea in young and mature women, occurring after a period of normal menstrual cycle, is found to be due usually to an anterior pituitary deficiency with a secondary ovarian deficiency. The deficiency of the pituitary may result without apparent cause, may be the result of nervous factors, and may result from pituitary growths actually destroying the estrogenic hormone cells of the pituitary. The determination of the exact nature and the factors underlying this condition is important and requires careful history taking, physical examination and laboratory tests.

Ovarian function may be stimulated by the use of anterior pituitary hormone, as antuitrin S hypodermically. If there has been atrophy of the uterus due to long continued lack of function, anterior pituitary medication must be preceded or supplemented by the ovarian hormones in order to directly stimulate the uterine function. Exclusive ovarian therapy, all claims to the contrary notwithstanding, is not indicated as it can produce at best temporary results and by doing the work of the ovary actually do harm by causing disuse atrophy of that organ, and by an excess of ovarian hormone in the blood, cause inhibition of pituitary function. It is probable that many of these cases are helped. However, evaluation of the results of pituitary and ovarian hormone therapy in amenorrhea is not easy. Conclu-

sions cannot be drawn from isolated cases. It must be remembered also that, with a properly balanced regime and an elimination of nervous factors, most of these cases balance up and are restored to normal function without hormone medication.

Delayed and scanty menstruation is due to the same endocrine causes as functional amenorrhea, and the principles of endocrine treatment are the same, consisting usually of pituitary hormone to relieve the primary cause and preceded or supplemented by ovary, the amount and length of ovarian medication being in proportion to the amount of uterine underdevelopment or atrophy present. As in amenorrhea, evaluation of the actual results of endocrine therapy is obscured in a cloud of controversy.

The functional disorders of the menopause, either artificial or natural, are due to a withdrawal of ovarian function. Laboratory tests show usually absence of normal estrin in the blood and an increase in the pituitary sex hormone. Naturally, substitution therapy by the administration of whole ovarian substance, of the ovarian hormone obtained from the urine or from other tissues, would seem to be indicated. Recent articles have appeared in the literature claiming good results from ovarian therapy in the functional disorders of the menopause. I believe, however, these results are not conclusive. Treatment is generally disappointing. These patients are frequently nervously unstable and it is probable that many have been helped by improving their psychology but it is at least controversial if the functional disorders of the menopause have ever been helped by ovarian therapy.

Uterine bleeding during puberty and in mature women before the menopause, not due to mechanical or inflammatory causes, is usually associated with a deficiency of the anterior pituitary hormone in the blood, with secondary ovarian deficiency. The hormone treatment reported most successful is the stimulation of the normal ovarian cycle by the administration of anterior pituitary sex hormone, as antuitrin S or follutein or a similar preparation, usually in large doses of 100 to 200 rat units daily to control bleeding, this treatment being repeated with a recurrence of an abnormal menstrual cycle with bleeding. Novak of Baltimore and others claim good results for the use of the anterior pituitary hormone, and Mazer and Goldstein of Philadelphia claim that anterior pituitary hormone is almost a specific in functional uterine bleeding of puberty and maturity. Clinical reports of cases

treated locally would justify the conclusion that this treatment promises some results in a fair percentage of this type of functional disorder and may spare the patient the more radical roentgen, radium or surgical interference.

In the hemorrhage of the menopause the blood contains normal or an excess of anterior pituitary sex hormone. Probably no endocrine therapy has ever helped the bleeding of the menopause.

Functional dysmenorrhea can be passed over briefly. No endocrine deficiencies have been determined in this condition and there is no conclusive evidence that hormone treatment ever helped a case of dysmenorrhea.

If the results of therapy which I have detailed represent the truth, it will be necessary to conclude that, while we have gone far in our knowledge of the origin and physiologic action of the estrogenic hormones, we are only on the threshold of their therapeutic application. It is well to remember, moreover, that in practicing this therapy some caution is necessary. We are dealing with very potent substances. We know that any therapeutic agent capable of doing good is also capable of doing harm. Endocrine therapy is chiefly a substitution therapy. Excessive and long continued use of the ovary may result in ovarian disuse atrophy. Excessive use of pituitary may harm the ovary by stimulation to overfunction. We certainly cannot tinker with the endocrine balance of the body in an attempt to help our patient without at the same time taking chances of doing her harm.

In evaluation of our therapeutic results we should not draw conclusions from isolated cases. Perhaps our patient improved in spite of our treatment. So, if this kind of therapy is used, it should be employed intelligently after a careful history, examination and laboratory tests so far as they are possible.

In conclusion, endocrine therapy in gynecology has made great beginnings during the past few years. Its real value, however, is in its possibilities for future achievements rather than in its present accomplishments.

CONGENITAL ATROPHY OF SKIN, WITH RETICULAR PIGMENTATION. M. F. Engman, Jr., St. Louis (*Journal A.M.A.*, Oct. 19, 1935), reports the case of reticular pigmentation of the skin with atrophy that M. F. Engman, Sr., presented before the Chicago Dermatological Society in 1926. In his description of the case he remarked that the brother of this patient also suffered, but to a lesser degree, from the same condition. These patients have continued under the author's observation and have submitted to certain studies, which are discussed.

ACUTE POLIOMYELITIS

OBSERVATIONS ON CASES AMONG CHILDREN IN
SPOKANE AND VICINITY, 1934*

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From May to November, 1934, there were reported to the Spokane Health Department 161 cases of acute poliomyelitis with nine deaths (5.6 per cent). One hundred and nineteen cases, or about 75 per cent, were in individuals of fifteen years of age and younger. During the epidemic it was our opportunity to observe some of these children in a single consultation with their family physicians and forty-four (37 per cent) were under our personal care. This group of forty-four cases gave a fair cross-section of the disease and presented sufficient interesting data to justify this statistical report, even though nothing new in management or treatment can be recommended.

The outbreak was characterized by some unusual features, not only when compared to previous local epidemics but even to the California epidemic of the same year. In the Spokane region in former years the preponderance of cases of bulbar paralysis has always been striking. Furthermore, in former years so many of the bulbar type followed tonsillectomy that it could not be considered only a coincidence. It had become almost a universal practice among the majority of local surgeons to postpone tonsil operations until the cessation of each epidemic in the fall. The death rate among cases of bulbar paralysis coming on a few days after tonsillectomy was obviously very high. In 1934 there were a large number of alarming bulbar paralyses but strangely enough we failed to observe any case in a child who had had a recent tonsillectomy and in our entire group there was only one death (2.5 per cent). This girl died about one hour after she was first seen with an apparently combined meningitic and bulbar types of poliomyelitis.

In contrast to the California epidemic it was noted that their peak was earlier (June).¹ Only three cases occurred in Spokane in June, thirty-eight were reported in July, and the crest of the wave was reached with seventy-five cases in August. Another apparent difference was in multiple cases in the same family, or in groups, such as nurses.

In our group we had no definite proof of two cases in any one family, and a suspicion of a second and mildly abortive case was aroused in only two exposed children. This was most striking as a total of sixty-one well children in the immediate families were definitely exposed to the acutely ill children, and preventive measures such as blood or serum injections were not resorted to in any of these exposed children.

From this group of 1934 the conclusion would seem justified that prophylactic convalescent serum in an exposed child was unnecessary. With this refusal to attempt immunization in exposed children of the same family by serum injection and with the apparent justification of this stand by the absence of secondary cases in the home we were also able to counteract mass hysteria among the parents of other children. The near-by group lake camps were closed so that the individual children might return home to be under the responsibility of their parents. Sufficient pressure was exerted to delay for a few weeks the opening of school in the fall, but by September the epidemic was on the wane. There were no reported cases among exposed nurses or physicians and masks were not worn by the nurses at the isolation hospital.

Another interesting contrast was observed in connection with the proportion of nonparalytic or abortive cases and frank cases. Less than one-half of our group (twenty cases) were abortive or nonparalytic, and yet all of these cases had fever, stiff spine and positive spinal fluid findings. In certain areas of California the incidence of abortive to frank cases was estimated from 10:1 to as high as 50:1. The California cases had a high morbidity in older children and young adults, and were associated with a low incidence of paralysis. Twenty-four children (54 per cent) of our group became paralyzed.

It would appear that our small outbreak was so different from the California epidemic in many aspects as to be almost a distinct and different disease. We failed to observe multiple cases; children were diagnosed as abortive or nonparalytic when they escaped paralysis after an attack of fever, rigid spine and definitely positive spinal fluid findings, and these children were not in the majority; more than half of our group became paralyzed; a negative spinal fluid was found in only one case, whereas one California observer reported normal spinal fluids in as many as half the cases.

INCIDENCE

Sex. The preponderance of males over females

*Read before a meeting of Region 4, Academy of Pediatrics, Seattle, Wash., August 9, 1935.

1. Rosenow, E. C., Heilman, F. R. and Pettet, C. H.: Observations on the Epidemic of Polio-Encephalitis in Los Angeles, 1934. Proc. Staff Meet., Mayo Clin., 9:443-451, July 25, 1934.

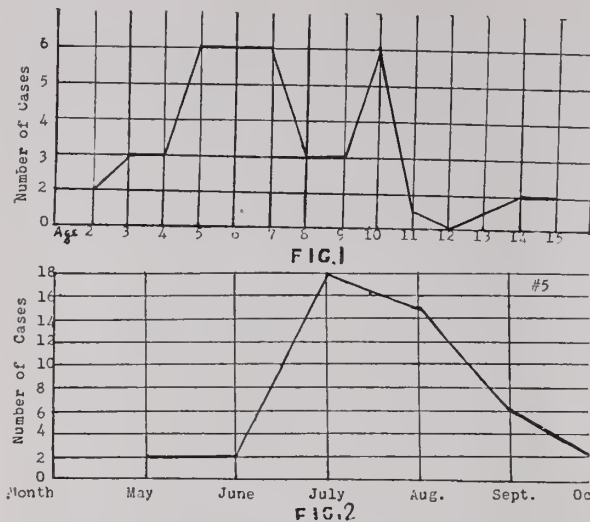


Fig. 1. Shows number of cases at different ages.

Fig. 2. Shows number of cases in different months.

was most striking. Thirty-three cases were in boys and 11 in girls. This ratio of 3:1 is remarkable; of the 36,000 cases summarized by the International Committee for the Study of Poliomyelitis, the ratio was males to females 1.3:1.

Age. Two cases were seen at two years of age. The majority of the group (70 per cent) was observed in children between five and ten years of age (fig. 1).

Location. It was interesting that 22 cases were in children living in the city at the time of the illness and the other 22 occurred in children living in Spokane county or the adjoining county.

Season. Almost 70 per cent of the cases in our group were seen in July and August (fig. 2).

SYMPTOMS

With but few exceptions the symptoms were quite constant. The children had become abruptly sick and every case had fever. The majority had fever for two days when first seen. In eight cases the fever curve was of the "dromedary" type. If the child had any complaint it was of headache and sore throat. Vomiting occurred occasionally but no diarrhea. Reflexes were hyperactive. The most consistent finding in addition to the temperature was the typical stiff spine. This was found in thirty-six of the cases at the first examination. In five children the spine was not stiff on the first examination but the spine sign in four of the five cases became positive on the following day, and on the fifth child the spine test was positive on the third day. In two cases the spine was so slightly stiff as to be only suggestive of the disease, and in one paralyzed child under observation from the onset of the fever there was not even a suggestion of

rigidity. The fever persisted usually for four days or less (90 per cent) and seemed to terminate by crisis. Convulsions occurred in only one case. Tremor was common. Restlessness, anxiety and excitement were often observed.

Two paralyzed children who progressed to complete recovery were originally referred with the diagnosis of acute appendicitis. Not only was there localized right sided abdominal pain and tenderness but in the boy there was even a suggestion of a mass as of an early appendical abscess. The spinal fluid in the girl was the only normal spinal fluid in thirty-four spinal punctures. With the development of lethargy and transient leg weakness in the boy, and with the development of severe bulbar symptoms in the girl, the abdominal symptoms disappeared and have not recurred.

The average spinal fluid cell count was 138. The lowest count was 28 cells, the highest being 650. The number of cells was of no apparent aid in the prognosis as to abortive cases or as to the extent of expected paralysis.

PARALYSIS

Twenty children had fever, stiff spine and definite increase in spinal fluid cell count but failed to show paralysis. They were given intramuscularly one dose of 20 cc. pooled convalescent serum, untested for antiviral potency. Nine children were diagnosed in the preparalytic stage, given serum, but developed paralysis. Six of the cases were of the spinal type, and in only three children was the paralysis present after three months, and now only one child remains paralyzed (both legs). Three of the cases were of the bulbar type and went on to complete recovery, although one boy was unconscious for days and the most seriously sick of the entire group with the exception of the child seen in extremis. Seven children were already paralyzed when diagnosed or first seen but serum was still given, either because the paralysis was of an early bulbar type or because the parents desired its use. One combined bulbar and spinal paralysis went on to early complete recovery. Three cases of bulbar paralysis, all of them desperately sick, progressed to complete recovery. Three cases of spinal paralysis were observed; one boy recovered in a week, one boy had leg paralysis after five months, and the third boy may never be able to walk more than a few steps, even with all possible orthopedic aid. Seven children were already paralyzed when diagnosed or first seen, and no serum was given. Three of the cases had bulbar paralysis and recovered completely. Three of the cases had spinal paralysis;

two recovered in three months and one child had slight permanent leg paralysis when seen eight months later. One case of facial paralysis recovered. Paralysis occurred usually on the fourth day of the illness but was often earlier, especially among the bulbar types.

Early orthopedic consultation or care was obtained in ten of the cases of spinal nerve involvement. The muscles usually showed a slightly progressive weakness, arriving at the maximum in a few days, but rarely extending to a severe flaccid paralysis. The recovery of the weakened muscles following early orthopedic restraint was the most marked and rapid we have ever seen.

Analysis shows that of the twenty-nine cases given serum in the preparalytic stage as diagnosed by positive spinal fluid findings, nine children became paralyzed and in only one has that paralysis remained severe and permanent. Of the fourteen cases first seen or diagnosed after paralysis, three children still showed permanent spinal paralysis when last contacted, and in one of these cases the resulting loss of function of legs was almost complete.

COMMENT

Conclusions from the use of the serum in this outbreak are difficult. On quick superficial observation an enthusiast for serum might exult over twenty nonparalyzed children and but one severe permanent paralysis out of nine paralyzed. A pessimist in regard to serum might point out that nine children became paralyzed even after having had serum, and that fourteen were paralyzed when first seen or diagnosed and yet in only one child was the resulting paralysis entirely disabling.

The most unanswerable questions are with reference to the twenty nonparalyzed children. How many of them would have escaped paralysis without serum injection? Would it be possible for another group of twenty similarly sick children to be deprived of all treatment and yet escape any paralysis? Was the relief in these abortive cases as much from the spinal fluid drainage as it was from the serum? Was the single small dose of serum really efficacious or was the percentage of children who were thus treated and yet escaped paralysis what it normally would have been, even if no serum had been injected?

The outbreak was not mild from the standpoint of the number of cases of paralysis (54 per cent), but was unusually mild from the consideration of the low death rate and the lack of permanent paralysis. Did so many cases of bulbar paralysis, most

of them unusually severe, live just because the 1934 infection was not so virulent or not so selective for associated respiratory paralysis? On the other hand, hospital care was undoubtedly a favorable factor in the bulbar types. All but one of the cases of bulbar paralysis had posture drainage and suction carried out by qualified nurses at the isolation hospital. In previous epidemics hospitalization had been forbidden.

In our next epidemic may we not expect fewer abortive cases, a return of cases following tonsillectomy, a high incidence of paralysis among exposed children of the same family, more permanent damage from spinal paralysis, or more deaths from bulbar paralysis, even though we use the same routine as we did in 1934? Acute poliomyelitis appears so changeable with each recurrent outbreak in the same community and even with the same epidemic in separated localities that accurate conclusions with reference to serum treatment may always be questionable.

SUMMARY

1. Observations are reported on forty-four cases of acute poliomyelitis in children.
2. The majority of the cases were seen in July and August.
3. The number of cases among males was striking, 3:1.
4. Twenty cases (46 per cent) were of the abortive or nonparalytic type.
5. Twenty-four cases (54 per cent) showed definite paralysis.
6. Sixty-one well children were actively exposed in the homes and were not given serum and did not develop the disease.
7. Death occurred in one case (2.5 per cent).
8. The spinal fluid findings were positive in thirty-three cases and negative in only one case.
9. The cases of residual paralysis were few and the extent of residual paralysis was slight, except in two instances.

SUBJECTIVE MENTAL AND PHYSICAL REACTIONS TO A FREE FALL IN SPACE. From a study of the subjective reactions to a free fall of approximately 1,200 feet in space, made by means of a delayed parachute jump, Harry G. Armstrong, Dayton, Ohio (*Journal A.M.A.*, Oct. 5, 1935), concludes that: 1. In a free fall in space the mental reactions are normal, except as influenced by fear, excitement or other factors not attributable to the fall. 2. In a free fall in space there is produced only one abnormal physical sensation and this consists of a very gentle, evenly distributed generalized, superficial pressure on the downward surface of the body. 3. There is an apparent diminution of hearing acuity from an undetermined cause. 4. Position in space and motion through space are recognized solely by means of vision. 5. Depth perception acuity is such that a speed of approximately 100 feet per second at a distance of 1,900 feet from an object is required to recognize motion toward that object.

INFLUENCE OF NERVOUS STATES ON STOMACH DISORDERS*

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That emotional states have an influence on digestion has long been recognized. Recently new evidence has appeared which may have a bearing not only on functional disturbances but on organic lesions as well.

Recently Cushing has reported the coincident occurrence of definite stomach ulcers with brain tumors. Certain types of operations on the stomach outlet having to do with the destruction of the pyloric sphincter point the same way.

I wish incidentally to mention that in the complete thyroidectomies I have been doing in recent years the patients are relieved of digestive complaints, followed by a very pronounced improvement in general nutrition. The flat, sallow, asthenic patient becomes plump, pink and peppy. There is something more than coincidence there.

I wish to present the thesis that many of the stomach complaints with which we have to deal are due to pylorospasm, the result of some nervous influence which results in the retention of the stomach contents, and that for their relief we must treat not primarily the stomach but the nervous state. The cases should be transferred from the gastrologist to the neurologist, or to the family doctor who understands the difference between patients and cases.

The symptoms, in brief, of the cases here under consideration are chiefly those which we once were asked to believe were due to duodenal ulcer. The symptoms had to do with pain coming on two hours or so after meals and commonly were relieved by the taking of food or the ingestion of antacids. That the pain was due to the flowing of acid gastric contents into the duodenum was a rank supposition. The only semblance of evidence was the fact that the pains usually come on about two hours after a meal. As a matter of fact, there is doubt if an ulcer itself causes pain unless it extends deeply enough to reach the serosa and produce a perigastritis. The pain in this class of cases has the earmarks of spasm and is relieved by antispasmodics.

Roentgen evidence shows that, when the pains come on two hours after a meal, there is not an outpouring of stomach contents but a spasm of the pyloric sphincter and a retention of gastric contents, and it is relieved by paralysis of the sphinc-

ter and the neutralization of the acid state of the stomach.

A number of writers have recently noted that stomach ulcers are most common in nervous individuals. This is a very important fundamental observation and lines up with the parallel observation that ulcers are sometimes familial. I had one family in which perforation of ulcers occurred in three members. These nervous states may be constitutional or temporary. The symptoms which have commonly led to the diagnosis of ulcer are notoriously recurrent, but whether ulcers are recurrent or not requires renewed examination. The only thing we are sure of is the symptom-complex we called ulcer was recurrent. We are right where we started, to-wit, we are dealing with something which is recurrent. My observation is that roentgenologists are not diagnosing small ulcers with the frequency and gusto of ten or fifteen years ago.

I wish to present three cases illustrative of different types of temporary nerve influence.

Case 1. A husky young woman comes complaining of a loss of thirty pounds in weight and relates that she has been under the care of a prominent gastrologist for the past seven months, that she had lost seven pounds before she consulted him, was diagnosed ulcer, placed on a rigid diet and has continued to lose to the point where the medico suspected cancer and advises her to seek an operator.

The initial loss of weight, the seven pounds before she consulted the stomach man, she rather shame-facedly admitted, was due to eating pickles in the effort to reduce her weight. She got a pain in her stomach which frightened her and she repaired to a specialist of the region where the pain was.

But the trouble was not where the pain was. A perfectly healthy dame eats pickles to lose weight and gets an awful scare. Obviously we had to do not with a sick woman but a frightened one. Obviously the indication was to remove the fright. She was made to see the rather ridiculous cycle she had gotten herself into and was induced to go home and eat rare beefsteaks.

She rapidly regained her weight and has had no stomach complaint for sixteen years. No medicine whatever was prescribed. Managing the case was a bit of by play. I wanted to show the young gastroenterologist how the old family doctor practices medicine and also to impress the joke on the patient. Both worked.

Case 2. Representing a different condition was an engineer, aged 69. He came in and announced: "Doc, been to the big city, had my stomach examined; took twenty-four pictures, looked at my stomach four times in the dark. Had eight docs of one bunch, said I had cancer and wanted to cut it out; another bunch said I didn't; the third bunch wanted to cut into me and see which of the others was right. I got disgusted and come on home. I knew all the time what was wrong.

"March 16 I pulled out with my train of sixteen cars. It was the day of the terrible dust storm. It was so dusty I could hardly see the stations. Some stretches I held that engine at seventy miles an hour. I got so every little bit I could see sandhills on the track and could hardly keep from grabbing the reverse. When I got to the end of the

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run I was so weak my fireman had to help me out of the cab.

"I tried to eat supper but my stomach was the size of my fist and right under my breast bone and I couldn't eat but a few bites. I tried to sleep but I would find myself sitting up grabbing for the reverse. I lost ten pounds in eight days. The division surgeon said "cancer" and sent me to the big city. I haven't got cancer; it was that dust storm. I knew all the time what was wrong but the docs wouldn't listen."

I have never listened to a more graphic account of a disease. Three weeks lay-off and a sedative for six weeks and he was ready to pull his train again. The story that misled his medical advisers was that a man, 69 years old, cast-iron stomach, suddenly loses ten pounds. He would have recovered without treatment but a sedative and the chance to tell his own story and make his own diagnosis gave him an added confidence for recovery. His clear eye and ruddy complexion should have made a barium meal superfluous.

Case 3. Had to do with a huge cattleman of the old school, aged 46. He announced that he had a cancer of the stomach and would like to have it cut out tomorrow. Was not disposed to answer questions because he had been to the big city where specialists washed out his stomach and looked at him in the dark and took pictures. He had lost thirty pounds in weight in three months. Always before he had handled beans and sowbelly from the chuck wagon with delight and dispatch.

After sparring with him for a time, in response to the question whether he had been on any unusual nervous strain, he jumped from his chair and fairly yelled: "Three months ago I was worth half a million and now I don't know if I have money enough to pay your doctor bill." I let him tell me the vicissitudes of the cattle business and sent him out with hyoscyamus and bromides commensurate to his huge frame, with directions to return in three weeks.

Three weeks later he greeted me a hundred feet down the lobby with: "Doc, I'll lick them sunnzabitches yet. Got the case reopened in court and my lawyer says it will be easy to prove fraud." After he had emitted his opinion of cattle bankers in general and one in particular, in reply to the question as to the status of his digestive apparatus he replied: "Oh hell, my stomach is all right."

Since he was to be subject to continued nervous strain from lawyers and litigation he was kept on his sedatives until the period of legal strife had ended and he had been thoroughly convinced that his trouble was due to nervous strain.

I quote these three cases because they illustrate the value of listening to the patient's own story. Such histories recorded by a resident or interne lose their dramatic value. A look at the patient in such cases is worth more to the practiced eye than all the laboratory tests in the world. Each patient was treated according to the individual needs and leading to the solid conviction that the doctor knew exactly what was wrong and this is as necessary as bromides. Each of these patients had in common previous excellent digestion, rapid loss of weight and retention of a part of the barium meal.

My hypothesis of the pathogenesis of these cases is that, due to a nervous state, the pylorospasm causes a retention of the stomach contents, the pain being due to a spasm which prevents the emptying of the stomach contents and is intensified by this retention. Distention of the stomach and eructation may or may not follow. That the use of antacids or the taking of food may bring relief is easy to understand. They neutralize the retained acid contents. That frequent washing of the stomach, diet and Sippy powders give relief is undoubted but they do not get at what is wrong with the patient and in time the condition returns. I do not believe they were cured of any ulcer because they never had any. A repetition of these attacks unquestionably sometimes ultimately leads to the formation of ulcer. The penning-in by spasm of a stomach full of acid contents certainly furthers this tendency.

The evidence in favor of this hypothesis is that one can demonstrate under the fluoroscope the pylorospasm and its disappearance when the symptoms are relieved, that they respond to nerve sedatives, that these patients have been under some unusual nerve strain.

The constitutionally nervous persons present a different problem. They must be continuously observed as nervous persons. An understanding of their own condition helps materially.

For instance, one of my patients has taken bromides the first few weeks of the beginning of his term of school for now thirty years. After the excitement of the first few weeks has passed he is free from stomach trouble for another year. Another patient, a high powered merchant, suffers stomach pains when on buying expeditions and anticipates this by taking antacids and luminal before he begins his negotiations. The antacids are sent along in this case because I know he is going to put things into that stomach that are not indigenous to Kansas. Here, as in all chronic disease, one should diagnose his patient first before he starts to diagnose the disease.

HEMOCHROMATOSIS. John P. Creed, Haverill, Mass. (*Journal A.M.A.*, Oct. 12, 1935), describes a case of early hemochromatosis and that has some unusual features. First of all, the patient was acutely ill on admission, sufficiently so to have a diagnosis of intestinal obstruction made. Then the cirrhosis was in an early stage before the development of ascites, there was no evidence of diabetes, and lastly, there was no marked pigmentation of the skin, although there were some pigmented areas over the backs of the hands and over the tibias. These areas and the skin in general were not striking enough to be considered unusual in a man of his age (65). The patient has been followed for almost four months since his discharge from the hospital. His digestion has been good and there is no evidence of increased pigmentation of skin, glycosuria or peritoneal fluid.

ALLERGY. ITS RECOGNIZED CAUSES *

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(Concluded)

BACTERIAL ALLERGY

The occurrence of bacterial allergy in infectious diseases indicates that nasobronchial and other allergic symptoms might arise from allergy to bacterial infections of the nasobronchial, gastrointestinal or other tissues of the body. Evidence of such allergy is obtained from the delayed tuberculin type of intradermal reaction to suspensions of such bacteria recovered from such tissues. However, the immediate wheal type of skin reaction seen in pollen allergy rarely occurs, and poor results obtained from the use of vaccines and removal of foci of infection in the attempt to control allergic symptoms as reported by most allergists casts doubt on the frequency of bacterial allergy as a cause of asthma and nasal symptoms. All agree that certain intractable cases are probably due to bacterial allergy, but treatment based on this hypothesis often fails.

Inhalant and food allergy must receive primary consideration. It is probable that mild bacterial sensitizations often are secondary to other allergies. Obvious foci of infection, especially in teeth, tonsils and sinuses, should be eradicated from the viewpoint of health. Occasionally such surgery will clear nasobronchial allergy, and I have seen several cases of hives and angioneurotic edema cured by the removal of infected teeth, tonsils, gallbladders and rectal fistulas. Such cutaneous allergy, however, is more frequently due to food.

Surgery on sinuses and tonsils to relieve nasobronchial allergy is usually disappointing. Symptoms may temporarily abate and often are greatly exaggerated. Radical surgery probably yields no better results than conservative technic. Infection should not be diagnosed when examination indicates allergy of the mucous membranes. Opacity of the sinuses may arise from allergy alone. Hansel has shown that the presence of eosinophiles in the nasal secretions as contrasted with pus cells points to ingestant or inhalant allergy. This test should be widely utilized. Thus, when infection of sinuses and tonsils is definitely indicated, conservative surgery should be done after thorough prolonged allergic study and treatment over a period of two or three months has ruled out or controlled other types of allergy. At that time removal of

polyps or deviated septa impeding aeration may also be wise.

Vaccines should be used, if bacterial allergy is definitely suspected, especially before and after surgery. Benson and Kreuger have described special methods of vaccine preparation from nasobronchial and colonic bacteria. Generally the technic recommended by Thomas and Rackemann is used. Separate organisms are isolated. Intradermal tests are made with their suspensions and the bacteria are combined in a vaccine according to skin reactivity. Treatment must be started with dilutions which fail to react and increased so that no exaggeration of symptoms occurs. Such therapy is at times beneficial and is worthy of trial in intractable cases.

That infection in itself and toxic histamin-like products of bacteria can cause asthma-like symptoms has been stressed by Huber and Koessler and Harkavy. Low grade pneumonitis, chronic bronchitis and enlarged hilar glands may yield difficult breathing, wheezing and an irritative cough. Roentgen studies are of course important and careful differential diagnosis will help in recognizing such effects of infection. I have seen infection around teeth and in tonsils and sinuses yield symptoms simulating bronchial asthma.

ALLERGY TO PARASITES AND INSECTS

Parasites resident in the intestinal tract or the body tissues may produce various allergic disturbances. Ascaris, tape worms, echinococci in particular have been causative. Allergies arising from fleas, lice and from the inhalation of emanations from flies, moths and butterflies have already been mentioned.

CONTACT ALLERGY

Local sensitization of the skin to organic and inorganic substances of all types is frequent, especially to those with which people are constantly exposed during routine work, relaxation or pleasure. Many students feel that the term eczema should be reserved for such lesions, an outstanding example of which is dermatitis venenata which arises especially from poison oak, other oils of plants and pollens, certain drugs and medicaments, from resins of woods and various chemicals met with in industry. There is hardly an occupation which may not yield a special cause for contact allergy. In contrast to this eczema, that dermatitis which arises from food or inhalant allergens is best called allergic eczema or possibly neurodermatitis. In the former, sensitization occurs in the cells of the epi-

dermis and the allergen enters the skin from without; in the latter, sensitization occurs in the cells of the cutis and the allergen attacks the sensitized cells usually by the vascular routes.

Determination of the cause of contact eczema requires a most careful history and astute detective study of the possibilities. Bloch and Jadassohn first suggested patch testing which has evolved into a most useful aid in allergic diagnosis. A small amount of the solid organic or inorganic substances under suspicion is strapped to the skin with adhesive tape. If it is a fluid, a small square of gauze is saturated therewith, covered with a small piece of cellophane and held to the skin with adhesive tape. The test should be read in forty-eight hours and any lesion of the skin, as compared with the control varying from redness to actual vesiculation or blistering, indicates a positive reaction.

Contact eczema which develops in the home requires suspicion of all cosmetics, soaps, foods, fabrics, furniture, waxes, polishes, cleaning materials, clothing and similar substances. If history indicates an occupational source, testing with all related contactants must be done. In recent years, contact eczema from the oils of pollens and leaves has been recognized and its treatment with intramuscular injections of such sterile oils has been of some value. In my experience pollen often causes allergic eczema which necessitates prolonged pollen desensitization.

INJECTANT ALLERGY

The subcutaneous, intramuscular or intravenous injection of serums, allergens and drugs may result in various manifestations of allergy. Many of these possibilities, including serum allergy, have already been mentioned. Special note must be made of allergy arising from food allergens introduced into sensitized individuals through blood transfusions. Such proteins enter the blood from the food in the stomach or intestinal tract and have caused asthma and cutaneous allergy in various individuals. When allergic patients are to be transfused, especially when they are suspected of active food sensitizations, it is best to take blood from donors three or four hours after meals or after donors have eaten foods infrequently productive of allergy. Moreover, drug and inhalant allergens theoretically might be transmitted through transfused blood.

Drug and food allergy may also arise from rectal injections or enemas. In one patient severe asthma developed from malted milk in a barium enema, and in another from mucilage of acacia in such an

enema. Sensitization phenomena have resulted, moreover, from injections of medications into the vagina, ears, nose, sinuses, bronchial tract, cerebrospinal canal and into the urogenital tracts.

PHYSICAL ALLERGY

Duke especially has described many nasobronchial, cutaneous, and other allergy-like manifestations which arise at times from the effects of light, heat, cold and effort on the body cells. It seems probable that such physical agents either release an abnormal amount of histamin from the affected cells or give rise to a specific allergen in the tissues to which allergy arises, a mechanism similar to that hypothesized by Lansteiner in drug allergy. Another possibility is that the physical agent may act as a trigger mechanism which releases an underlying potential ingestant, inhalant or possibly a bacterial sensitization. It thus acts as a secondary rather than a primary cause of allergy.

INGESTANT ALLERGY

Food, of course, is the outstanding cause of ingestant allergy. It was first discovered by Richet who, in collaboration with his student, Barnathan, wrote the first monograph on the subject. In 1919, Richet's son with Laroche and Saint Girons published another monograph on the manifestations of food allergy especially in childhood, which we had the opportunity to translate into English. In this country, Schloss first emphasized food sensitization in 1912 and since then Vaughan, Andresen, Alexander, Eyermann, Gay, Ratner, Balyeat, Brown, the speaker, and others have studied and written on this subject, so that today most physicians realize its frequency as a cause of mild to severe disturbances in most tissues of the body. Most people at some time of life, and especially in childhood, probably have mild or marked food allergy. Vaughan in a recent analysis of all people, 508 in number, in a small community found evidence of food allergy through history alone in 62.2 per cent which corroborates conclusions from my analysis of histories personally obtained from 2000 students at the University of California.

People may become sensitized to any food or condiment at any time during life, especially in childhood. I have many patients, however, who apparently for the first time in their lives have developed asthma, eczema or gastrointestinal symptoms from foods during their fifties or sixties. Foods which are eaten continuously in excess or at intervals are especially prone to produce allergy. Thus, the commonly ingested foods, wheat, milk, eggs and

various fruits are often causative. The tendency to group reactions to biologically related foods explains sensitization to all cereals (wheat, rice, corn, rye, barley, oats) in certain people, and to citrus fruits in some, pit fruits in others, to the cabbage group of vegetables, or to all fish or shell fish in special patients. Ratner has recently repeated and amplified experiments done first by Richet which demonstrate the fact that feeding of foods will sensitize animals so that anaphylactic shock can be demonstrated. Both acute shock and chronic or mild anaphylactic intoxication, which is often found in human beings, can be observed.

DIAGNOSIS

Physicians will appreciate the frequency of food allergy in their patients only if they employ routinely the following diagnostic measures:

1. Every history should be taken with the possibility of all types of allergy in mind. The history of any of the symptoms which are frequently due to food allergy, occurring in the nasobronchial, gastrointestinal or urogenital tracts and in the central nervous system or the skin, should suggest food sensitization. If in addition a history of inhalant, contact or drug allergy is obtained, the possibility of the presence of a concomitant food allergy must also be considered. However, allergy may develop in patients without previous personal or family histories of hypersensitiveness.

The history may aid in revealing food disagreements which were previously known as idiosyncrasies and are often due to allergy. Children and a few adults, moreover, dislike certain foods to which they are allergic. Many children intuitively refuse such foods, and gag and regurgitate when they are forced to eat them. Anorexia is a frequent result of food allergy.

2. Next in importance as a diagnostic guide is trial diet. My elimination diets were first described in 1928, modified in 1931, and recently revised² and amplified with fuller menus and new recipes. Other trial diets have been successfully used by Brown, Alexander and Eyermann, and especially by Vaughan. I have always recommended the modification of the elimination diet chosen for the patient by his history of definite food disagreements or dislikes, and according to any definite skin reactions. However, if skin testing is absolutely impossible, many problems of food allergy can be solved by the use of elimination diets and history

alone, which procedure is justified by the relief given the patient. When food allergy is suspected, therefore, diet trial should be used in the same way that other laboratory tests are used in the study of any other clinical problem.

3. Skin testing must take a position subordinate to history and trial diets in the diagnosis of food allergy. Routine testing, it must be said, with reliable food allergens by the scratch method, is important, since the information derived especially from the more positive reactions is often of help. It is generally recognized, however, that skin tests are negative to 50 per cent or less of those foods which produce clinical allergies. A patient may give positive reactions to one or more foods and negative reactions to other foods causing symptoms.

Cooke recently stated that foods productive of rapid marked symptoms often give positive reactions, and that those causing delayed cumulative or chronic disturbances usually fail to react. Moreover, many positive reactions and especially slight and borderline reactions are not associated with any clinical or even potential allergy. Because of these facts, I usually modify my elimination diets only by substituting foods for those showing definite scratch reactions, or for foods to which definite disagreements or dislikes exist. My recent study of intradermal tests³ with foods not productive of positive scratch tests showed many confusing positive, nonspecific or delayed reactions which were of no aid in the diagnosis.

This attitude toward skin testing in food allergy is shared by Alexander, Eyermann, Figley, Gay and many others. Vaughan depends more on skin testing, though he emphasizes the paramount value of trial diets. He recently wrote: "Too many doctors and patients alike feel that the skin test is the last court and conclude, if the results of skin testing fail to relieve, that allergy is not a factor."

4. Vaughan especially has emphasized diet diary as an aid in the determination of allergenic foods. All foods eaten, with possible reactions therefrom, are recorded from day to day. In my own work I have usually depended on frequent conferences with the patient and notes I have personally taken in regard to possible reactions from foods under suspicion.

5. Vaughan, moreover, has found a depression of the white count after the ingestion of an allergenic food in many individuals and uses this test with some help in diagnosis.

2. Rowe, A. H.: Revised "Elimination Diets" for Diagnosis and Treatment of Food Allergy. *Am. J. Digest. Dis. & Nutrition*, 1:387-392, Aug., 1934.

3. Rowe, A. H.: An Evaluation of Skin Reactions in Food Sensitive Patients. *J. Allergy*, 5: 2, 135, 1934.

Drugs which are taken by mouth may also produce allergy. The tendency for aspirin to produce bronchial asthma and other less common allergic manifestations probably has given the drug its bad reputation in the minds of the lay public. Several deaths from asthma due to aspirin allergy have been reported. The propensity to cutaneous allergy from quinine, phenobarbital, arsenic, mercury, phenophthalein, less frequently from alkaloids, senna, ipecac and other organic and inorganic drugs is evidenced through the literature.

Drinking water is also being recognized as the origin of some allergy. Watson and Kibler have described asthma apparently from chlorine in the water. I have studied dermatitis and gastrointestinal symptoms most likely arising from algae and pollen. The possibility of allergy to other products of pipes, wooden and metal containers, vegetable and animal growths with which water comes in contact must be remembered. One interesting example was that of severe gastrointestinal and cutaneous symptoms from allergens in water from old pipes, in which millions of shellfish had grown during the years. One patient has severe gastrointestinal symptoms from spring water and not from well water. Allergy to one kind of wine, whiskey, cordial or even soft beverage and not to another must be remembered in these days.

CONCLUSIONS

Thus I have considered the specific allergens which are generally recognized today as causes of the various symptoms of allergy which challenge all physicians in their practices.
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PROBLEMS OF THE PHYSICIAN AND THE STATE INDUSTRIAL ACCIDENT COMMISSION

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This paper has for its purpose a frank discussion of the relationship of the physicians of this state to the Commission from the viewpoint of an examiner. As you know, the Commission employs medical examiners in both Portland and Salem to advise them as to the disposition of accident cases called in from various parts of the state. These examiners often have a part in what appear to be arbitrary actions of the Commission that might lead to misunderstandings with individual physi-

cians unless these physicians had an insight into the purposes of the Oregon Workmen's Compensation Act and problems associated with its functioning.

The Compensation Acts of various states were all enacted for the benefit of the working man. The condition of the laborer, and also of the physician who attended his injuries, was most unsatisfactory before the enactment of these laws. In the earliest days of industry the common law relation of master and servant prevailed. Under this relation there grew up three common law principles which acted to serve the employer rather than the working man in cases of accident. The first of these was the doctrine of the "fellow servant," under which it was held that the employer was not to be held responsible when an injury resulted from the fault of a fellow servant. The second defense of the employer was the doctrine of "the assumption of risk," in which it was held that an employee assumed all hazards of the occupation in accepting employment. The third doctrine was that of "contributory negligence," under which it was required that the laborer prove that the accident was not the result of his own carelessness.

The obvious unfairness of these doctrines to the interests of the workmen led to the enactment of Employer's Liability Laws which to a large degree removed these defenses and made the employer legally liable for financial compensation. This improved the status of the injured workman to a degree, but the emphasis was laid on financial liability and not on medical care, and the employer was still able to evade a considerable portion of his responsibility by the use of expert counsel and legal subterfuge. Under this form of protection, such as is still in practice as regards sailors in our merchant marine, the injured workman had the advantage of not being limited in the amount for which he might sue, and could generally count on finding a jury sympathetic to his interests as against a "company" which might be assumed to have unlimited resources.

The situation became a contest of legal jousting, in which the medical care of the injured man was largely overlooked. While a suit was pending it was distinctly to the advantage of the injured party to delay recovery, and to make the most of his disabilities. The atmosphere of this situation was distinctly unfavorable to satisfactory medical care; the physician attending the injured man was called upon to wait long periods for his fees with a good prospect that he might recover nothing; and he was,

* Read before the Sixty-first Annual Meeting of Oregon State Medical Society, Gearhart, Ore., September 19-21, 1935.

even more than today, dragged into court under circumstances in which partisan testimony was at a premium.

An improvement in the situation followed the enactment of compensation laws. The *fundamental principle of workmen's compensation is that personal fault or negligence shall play no part in determining the indemnification* of the employee or his dependents in case of industrial injury. Theoretically at least, the law was to provide the injured workman with immediate and automatic assistance in the form of compensation for wage loss, was to provide adequate medical and surgical attendance, and in case he was left with a permanent disability, to accurately measure this disability and provide the claimant with an award in accordance with a scale fixed by that law. The framers of the Oregon law did not consider this award as payment for the loss of a member; in fact, the term "award" was a misnomer in that the sum paid could not be considered in any sense as adequate payment for such loss, but was intended to represent partial restoration of wages, which was to assist the workman in tiding himself over the period of adjustment to his loss.

In some states the Compensation Acts are compulsory, but in this state the employer may elect to accept coverage under the state law or take insurance under a private insurance company. Since the employer is free to make such a choice, it becomes a matter of difficulty in certain instances to know what to do about the *employer who neglects to file an election of state coverage* until after some serious accident takes place. This is not infrequently done by the employer to avoid payment of premiums to the State Industrial Accident funds, and results in delays and misunderstandings when the physician in attendance sends in his report of the accident.

Another source of delay and misunderstanding may occur when an injured workman elects to take what is termed a "third party action." In filing such an election the employee, who would otherwise be cared for under the State Compensation Act, signifies his desire to bring action against a third party. In such an action the Commission is not immediately responsible for the medical care of the injured man, but since it is possible that the action may fail so that the Commission may eventually have to assume responsibility for the medical costs or final awards, the interest of the Commission in the case is apparent. Thus it becomes important that the Commission shall know

of the progress of the case, even though it is not immediately assuming responsibility for the bills involved.

The Workmen's Compensation Act of the State of Oregon provides for the establishment of a commission of three men, appointed by the Governor. These men are expected to represent, respectively, the employer, labor and the public. They are made responsible for the collection and administration of the funds collected from the employer and employee, each of whom contribute to the fund. (The original law called for a contribution from the state, since obviously society as a whole is interested in the physical and economic security of the laboring class, but unfortunately this contribution was lost to the fund some years ago as a political gesture, and has never been recovered. It should be made available again.) The Commission administers the fund provided to insure the workingmen against accidents and their sequelae. They are further required to act as arbitrators in case of dispute as to adequate medical or surgical attention, and to hold rehearings for cases of injury, in which the claimant is not satisfied with the final settlement of his case.

This is a most difficult assignment, particularly in periods of economic stress. That the Oregon Act has weathered the recent depression successfully has been due, I believe, to four factors: (1) an exceptionally open-minded and harmonious group of Commissioners, (2) the cooperation of the medical profession as a whole, (3) a conscientious group of medical examiners, and (4) the valuable assistance of the "liaison committee." If time permitted, I should like to discuss in more detail the manner in which each of these factors has contributed to the continued soundness of the Oregon Law in a period during which so many other State Acts have suffered from almost hopeless confusion and financial loss. However, I must confine my few remaining remarks to the problems of the medical examiner.

About 90 per cent or more of the cases of industrial injury are handled more or less automatically. That is, the case is accepted for medical aid and compensation at once, the medical fees are paid, the man returned to work, and the case closed without any questions being raised. For the remaining group of cases, however, there will be some problem that interferes with the automatic functioning of the Act. The problems that may arise are many and varied, having to do with the *status of the employer* as regards coverage, questions as to the *authenticity of the accident*, *delays in reporting*,

third party actions, excessive medical costs, serious medical or surgical problems relating to care, long delay in recovery from injury, problems of contract practice such as attempt to close a case before it is ready for closure, exaggeration or *malinger*ing on the part of the injured man, *physical complications* that delay healing, and the problem of estimation of *permanent disability*.

The last five of these items directly concern the medical examiners, and it is their function to advise the Commission to the best of their ability as to how the problems may be answered. In dealing with these problem cases alone it is difficult for the Commission or the examiners to maintain an optimistic point of view, since here are congregated the malcontents, the cases of sloppy or inadequate medical care, the cases in which doctors have overlooked complications or have grossly overcharged, and the wrecks and derelicts from serious accident, old age or antecedent disease. It is only by remembering the 90 per cent of cases which never present a problem for consideration, and the essential integrity and intelligence of the medical profession as a whole, that one can retain an unbiased judgment.

As soon as the Commission recognizes that some particular problem is presented by a case under consideration, they call the injured man to their offices in either Salem or Portland for examination as soon as his condition permits. It is important to all parties concerned that the problem be recognized early. Sometimes this is exceedingly difficult because of *inadequate medical reports* from the attending physician. The report blank forms sent out to the attending physician should be most carefully filled out for the purpose of giving a word picture of the status of the case. Some physicians thoughtfully supplement the form with a letter explaining some particular problem involved. These letters are of great value to the Commission in that they permit an intelligent supervision or disposition of the case.

Occasionally a physician will complain that a case has been called in that apparently had been progressing satisfactorily under his care, and perhaps thereafter not returned to him. While it is not the practice of the Commission to remove a case from a physician's care simply because he did not send in adequate reports, it is true that in many instances the primary reason for calling the case in was that the Commission could not tell anything about the status of the case from the reports sub-

mitted. It is also true that, when the examiners find conditions to be present that need attention that have never been mentioned in the reports, it may appear that either the doctor has not properly examined the case, or he does not know what to do about the complication, and therefore it becomes wise to place the case in more competent hands.

Sometimes a case does not return to the attending physician because it seems to the examiners that a course of physical therapy is necessary, and that treatment is given in the State offices. Naturally, with a completely equipped physical therapy and roentgen laboratory it is economy for the Commission to do as much of each of these activities as possible in the central offices. Not infrequently, however, the case is removed from the care of the attending physician for reference to a specialist. Occasionally this is done at the specific request of the claimant and without having discussed the matter with his physician, but more commonly the Commission considers the problem of sufficient importance to demand the advice or the operative skill of the specialist.

To remove a claimant from the care of a conscientious physician who has done his part in caring for the patient and in rendering reports, and who may in addition be a personal friend of the examiners, is perhaps the most objectionable feature of our jobs. However, if one considers that our interpretation of our duty places the interests of the claimant as of first importance in every problem with which we are confronted, I believe that it will be clear why such actions are taken. We are also forced to the conclusion by a long observation of unsatisfactory results from surgical intervention, that the best of advice and operative skill is a basic economy. It is a basic economy not only because it diminishes the amount of permanent disability which will have to be eventually paid from the fund, but because it lessens the number of handicapped workmen who find it exceedingly difficult to find honest employment and stay off the relief rolls or charity agencies of the community.

The examiners have adopted the custom of sending out to the attending physicians letters, or copies of the reports, they have made that day to the Commission regarding some case under examination. Any suggestions that the examiners may have to make may sound like criticisms of the care previously rendered. These suggestions are never intended as criticisms, but are put forward as tentative suggestions that seem to be worth trying. I can tell

you frankly that it is exceedingly difficult at times to know what suggestions to make in some of the long drawn out cases that are sent in to us. Many times our suggestions do not result in improvement of the status of the case, but it is part of our job to keep on trying.

From the outsider's viewpoint the question of malingering might seem of considerable importance. In actual fact, we see very few true malingerers, and are most reluctant to use this term. There is undoubtedly a fair number of cases in which symptoms are exaggerated, others in which disability is unduly prolonged, and still others in which an attempt is made to distort the disability in the hope of securing an increased award. To offset these cases, I believe we see more in which the attending physician urges that the case be closed before it is ready for closure. Sometimes this is done by contract physicians who wish to terminate their medical responsibility, sometimes by physicians who feel that they are rendering the Commission a service by forcing an early closure. I have in mind a variety of cases of this nature. For instance, the case with serious hand wounds in which the open lesions have healed but the hand left stiff and useless; the case with some underlying, untreated complication not directly related to accident, but indirectly acting to prevent or delay recovery; or the case with a residual disability that the doctor thinks could do "light work" at a time when he might better be occupied with reducing the disability.

This leads directly to the question of inadequate medical and surgical care. The commonest cause of inadequate treatment is the overlooked complication, such as a dislocation which has been missed because the attention has been focused on an obvious fracture, or the overlooked fracture of the upper end of the fibula in a case of Pott's fracture of the ankle where roentgen plates were taken of the ankle only. We have seen several cases with compression fracture of the spine which were recognized only after many months, at a time when the bone had been far along in healing in its compressed deformity. This sort of lesion is easy to overlook because the original trauma may have merely softened the vertebral body so that there is little to be seen in the first roentgenograms. Speaking of compression fractures of the vertebral bodies, it has been our experience that the deformity has too often been inadequately corrected by hyperextension and not immobilized for a long enough period of time.

Another type of case that usually causes the physician worry, and taxes the state fund severely in payment of disability awards, is the case of severe head injury. The terrible sequelae of headache, dizziness and the bizarre head symptoms that follow such an accident, are almost impossible to cure, once established, but it is quite possible that a longer period of complete rest flat in bed after such an accident might lessen their frequency. I am convinced it is exceedingly rare that a physician actually neglects his case to the extent of willingly making these omissions, but it is well for us all to realize that ambulatory treatment of the case of cellulitis or lymphangitis, the utilization of too vigorous manipulation and exercise, and other procedures which we may feel will hurry the progress of the case are often a poor economy for all parties concerned.

One final word concerning permanent disability awards might be worth mentioning. Under the Oregon law the highest award that can be made is that of permanent total disability. If such an award is made the claimant is paid \$30 a month for the rest of his life, plus small additional amounts for dependent members of his family. Such an award is often tragic in its implications in that it gives only the most precarious margin for existence, but more important, it condemns the workman to the destructive mental and physical implications of being a total and permanent wreck as an economic unit. The next highest award is equal to the loss of an arm. Such an award is rated as 96 degrees, that is, would pay \$25 (a single degree unity) for a period of 96 months if paid at that monthly rate. The third highest award is the loss of a leg, which equals 88 degrees (88 months at \$25 a month). In cases with only partial loss of a member or injury to some other part of the body, the rating is based on percentage of total loss of either an arm or a leg as the case may be, that the given injury may be considered to represent. A hand, each finger, toes, etc., all have allotted amounts assigned by the scale fixed by the law itself. It is the duty of the examiner to determine the degree of permanent partial disability in terms of percentage of loss of some member listed on that scale.

Usually the case is examined by two examiners who independently reach conclusions as to the disability rating. Two methods are used, the first rating each member lost according to the fixed scale, and the second method depending more on opinion than upon arithmetical figuring. It is the custom to

compare these two estimates and to allot the higher one. There is no objection to the physician submitting his opinion of the degree of permanent disability in a case called in for examination; in fact, such an estimate might be of definite help in closure of the case, but estimates are of no practical value to the Commission unless they are accurately based upon the stipulations laid down by the Oregon Law.

It is impossible in a paper of this brevity to really discuss the medical problems presented by industrial accident cases, but this paper has been presented in the hope that it will give some insight into the work that the Commission and its appointed examiners are called upon to do. And if there should arise misunderstanding, should actions of the Commission appear to be too arbitrary, or the letters sent out by the examiners seem to be too curt, please bear in mind that these men are doing a difficult job to the best of their ability with one interest paramount, the interest of the injured workman for whom the Oregon Workman's Compensation Law was written.

BRICKBATS AND BOUQUETS*

D. H. LEWIS, M.D.

SPOKANE, WASH.

I am bringing to you today some of the thoughts that have come to me during my years of varied experiences in general practice, private hospital management, active organizational committee work and as presiding officer of a large and active county medical society which has had to meet the same problems you have had and which we will all have to be prepared to face more seriously in these changing times. I felt the urge to voice these thoughts because of two reports which came out during this year.

First, the report of the A.M.A. house of delegates in special session in Chicago and, second, the report of the committee as to the causes of malpractice suits against physicians. The first reaction to the A.M.A. report was, "again they have passed the buck." They advised that, because each state, each county, in fact, each locality has the same problems in the economics of medicine to solve but each and every one under entirely different circumstances and different environments, therefore, of necessity there can be no common solution. This is no doubt true and the A.M.A. was right in making that decision. But we criticized and condemned

right off the bat and began to analyze afterwards. This is the mistake we are constantly making and that is my first brickbat. Brickbats where criticism is deserved and bouquets where credit is due.

Medical Service Bureaus. Probably no movement in medical economics has been cussed and discussed as much as our medical bureaus. They have been cussed most by those who have never given the question a serious thought or an hour of study. It is not possible for the Seattle Bureau to be exactly like that of Yakima; and by the way, the Yakima bunch has the smoothest, most satisfactory machine in my estimation in this state. Neither can Spokane copy Seattle. The fundamentals are all the same but the method of attack is necessarily different. I am not here soliciting supporters for the Bureau nor do I believe it is the only avenue of escape from present conditions, but I do believe it is the best system established to date. Therefore, I plead with you to thoroughly investigate your own organization and give it serious study before you make a definite decision, and if you decide in favor, then give it your wholehearted support.

Study well what it will mean to our profession as well as to the public, if socialized medicine comes. It will come, and soon under the present agitation for social security because of the trend toward centralization, unless we can prove to the powers that be in the various governmental administrations that there is a fair and just way to provide adequate medical service to the people in the lower income brackets without resorting to state medicine. The public would suffer under socialized medicine by the poor service they would be forced to receive. It would lose also its independence under regimentation by lay control. Our profession would be relegated into slavery where all individualism and initiative, the very heart of our branch of the sciences, would be killed for all time. This is a situation so critical that everything else should be temporarily shelved until a workable and legal solution has been agreed upon.

Contract Practice. More love has been lost and more friendships severed by this question or procedure than any other one subject in the whole field of medicine. Undoubtedly there are some contracts that are vicious. Those carried on by long distance communication are not to be thought of but there are those that give the only good care that is possible. I refer to those contracts in isolated communities that cannot afford a man of mature years and necessary experience and where surgical needs

* Read before the Forty-sixth Annual Meeting of Washington State Medical Association, Everett, Wash., Aug. 13-14, 1935.

are such that the young man is not able to cope with a certain percentage of the cases. Some of these industries demand one man who is entirely responsible for the medical care of its employees and who is quickly accessible when necessity demands. That kind of contract in my judgment is just and fair and gives the best treatment to all concerned. However, the contracts which place the value of a doctor's services to the public upon the basis of a dollar a month in competition without free choice of physician are lowering the dignity and standard of our profession. We have something fine and worthy to defend and the public will value us exactly as we value ourselves.

The W. E. R. A. Probably the less we talk about this thing the better because it is the worst political medical mess of all times. This very day several committees consisting of lay and professional men are doing much work and giving much study to this problem and I know that very soon they will arrive at a solution. However, therein lies grave danger and it behooves us to associate ourselves sufficiently with this plan so that we may recognize in time and be in a position to voice our opinions against this greatest danger of the establishment of socialized medicine. I shall now for the time being leave the first part of my paper alone and go on to the second.

Malpractice Suits. It has always seemed very strange and absolutely unexplainable to me the Dr. Jekyll and Mr. Hyde elements in the men of our profession. Individually there are none better. In our homes we make the perfect host, in sports of all kinds we are known as the fairest of them all. We all love the great outdoors and by the stream or in the fields the doctors are always sought as good companions. Even in a lively game of poker rarely do you see a cheat or a prude. But when we take these same individuals and gather them into an organization or oftentimes meet them individually in competitive medicine, then it is an entirely different story. The old red devil comes quickly on the scene and there's hell to pay and usually for no reason at all. It is always during these controversies that the inadvertently careless remark is made by one physician against another that starts, according to the aforesaid committee, over 80 per cent of all malpractice suits. The definitely unethical man who stoops to devious ways to obtain a clientele should be marked, stamped and then sent on his way to other pastures, but the one who has probably made an unpremeditated blunder should have the opportunity of fairly explaining all the circumstances

and ninety-nine times out of a hundred you will say to him: "Oh, hell, forget it, let's go fishin'."

Public Duty. You of the medical profession should participate actively in all civic affairs in your own localities; in no other way can you command the proper respect for your ability among other business and professional men or the public itself. You must study the affairs of the day as a patriotic duty as well as in self-preservation. No class of citizens is so intimately associated with the home and family life as is the physician. Our opinions on the questions of the day are frequently asked for and are respected. We should be prepared to advise fairly and wisely, not in a partisan way, but for the good of all of the people. If we lose these opportunities to help mold public opinion in the proper way, we have no right to criticize the results of the usual pot-shot voting of those we could have influenced or guided. However, we must educate ourselves first on current affairs, on proposed legislation, whether vicious or meritorious, if we are to pass on the necessary information to our patient families who ask our advice. We should not only take advantage of all such opportunities to do good missionary work but we should make opportunities. This is an opportunity you should not dodge.

Publicity and Public Opinion. Public opinion is swayed by the press. It has been the custom of the newspapers to give the widest and most sensational publicity to any legal difficulty into which the medical profession or any individual doctor has been drawn. The worn-out statement, "the press does not owe the medical profession any consideration because of its listing unethical advertising," should be corrected. Our profession supports the newspapers and gives them more news of real human interest than any other group and we should insist on fair treatment. Let us make ourselves so felt in our cities and towns that they will give us at least fair play. It is the profession that defines ethics, it is the individual who is so often unjustly maligned.

The Cults and Isms. Lose no opportunity to educate those with whom you come in contact about their vagaries, doctrines or beliefs. We must meet their propaganda for the good of the public and in self-preservation as well. Have you noticed during the last few years how many of the cultists are taking an increasingly active part in all civic, educational, religious, fraternal, political or sports organizations? They are always on hand and ready to give committee or any other service and by this intimate association with the membership are rap-

idly gaining recognition for their professions. The average person gives little thought to the merit of any particular cult.

You must realize that to the average layman a doctor is a doctor, be he quack, cultist or regular and little attention is paid to his scientific training, ability or experience. Frequently you hear such a statement as this: "Oh, yes, Dr. Blank is a fine fellow to meet and a keen worker in my service club so he must be a good doctor, we might as well call him to take care of the family." The public needs to be educated as to what M.D. means and unless we go into organizations and make our presence felt we cannot blame anyone but ourselves, if we are classed as just one more doctor of the many alphabet varieties. Orchids to you, if you grasp this situation and do your part to correct it. Brickbats to you, if you sit idly by and see yourself classified where you do not belong.

Generous Service. The members of the medical profession are usually the first ones called upon for money or service in the numerous drives promoted in the name of charity, civic progress, character building, etc. We are always glad to do our bit but we should use our influence to see that funds so raised are used for the purposes for which they were solicited. Bouquets for all of you who so generously serve but brickbats for those who blindly promote any movement without thorough investigation.

And now the real reason I have brought these things before you is just this. In less than two years another legislature will convene. We all remember the last one and what headaches it gave us for many, many days. The very near future is going to definitely define the destiny of our profession all over the nation. Let us not be as blind as we always have been and wait until the last minute for preparation, but for God's sake and ours, let us forget our petty jealousies, have a universal candid understanding, one for all and all for one. Start getting busy right now, every man with his shoulder to the wheel, and he whom we choose as our leader must know that everyone is back of him, fighting the same and common cause.

Legislative questions are constantly before us and because we settle them this year is no reason that they will not appear next year, probably the same ones in a different makeup. And now let's go fishin'!

COLD URTICARIA FOLLOWING CHICKENPOX *

REPORT OF CASE

BERTRAND T. FITZMAURICE, M.D.

SEATTLE, WASH.

Numerous cases of urticaria caused by cold have been reported in American and foreign journals, but the literature failed to reveal a single case of this condition initiated by chickenpox. Pritchard¹ cites a case of acute urticaria and chickenpox occurring simultaneously. Kobacker² reports three cases following measles, all in the same family; Del Vivo³ has found one following scarlatina.

Duke⁴ believes this condition occurs frequently in the allergic family, as in this case. When it occurs in the nonallergic family, it may be due to a disease disturbing the intricate heat regulating mechanism. This case is, therefore, reported because of its interest.

W. H., white male child of twelve years, was perfectly well and normal until May, 1935, when he developed a typical chickenpox. Immediately after recovery it was noted that the boy would develop large wheals over his body, a few minutes after exposure to cold water or chilly weather. On ingestion of ice cream, his lips would become swollen and he would feel "his throat tighten up." Once after exposure to a cold wind he lost consciousness, and was revived only after being thoroughly warmed.

Past history except for chorea at three years of age was not significant.

Physical examination was essentially negative. There was no dermatographism. Cubes of ice were placed on skin of abdomen, thorax and extremities. After two minutes of exposure the areas became erythematous, and small wheals developed, associated with intense itching, disappearing after five minutes.

It is interesting that the father, aged fifty years, has for the past two years been subject to an urticaria on a neurogenic basis, developing typical wheals when he becomes excited.

Treatment instituted is patterned after Duke,⁴ in gradual exposure to cold in form of cold baths.

* From Children's Orthopedic Hospital, through courtesy of Dr. R. Somers.

1. Pritchard, E.: Urticaria Complicated by Chicken-Pox. Brit. M. J., 2:867, Nov. 11, 1933.

2. Kobacker, L. J. and Parkhurst, H. J.: Cold Urticaria Following Measles. J. A. M. A., 105:662, Aug. 31, 1935.

3. del Vivo, G.: Contributo allo studio dell' orticaria da Freddo. Dermosifilografio, 2:387, Aug., 1927.

4. Duke, W. W.: Dawn of ??? in Medicine; Allergy and Physical Allergy. Wisconsin M. J., 33:265-276, Apr., 1934.



NORTHWEST MEDICINE

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EDITORIAL

THE ALLEGED LAXATIVE PRINCIPLE IN PRUNES

The laxative action of prunes has for a long time been attributed to the effects of bulk. Sometime ago, however, Emerson¹ announced that the laxative properties were not due solely to colloidal or emollient effects. This announcement was promptly followed by an advertising campaign for the sale of prunes, display advertisements in leading weekly magazines and even in some medical journals. Circulars endorsed by a medical authority carried this message to millions: "California prunes are laxative, due to the presence naturally of substances which stimulate intestinal action. This is in addition to the smooth bulk of the fruit which aids by supplying volume."

Emerson's report lacked data to indicate how much of the alleged active constituent was supposed to be in an ordinary "laxative" or breakfast portion of prunes. A guess might indicate a half-pound of the extract or many pounds of prunes for an adult. The new claims were not convincing, to say the least. Now comes a negative report from chemists² who prepared the prune extracts used by Emerson. Traces of caffeic acid are found in prunes, but the acid lacks a cathartic action in men and animals. It causes only a slight and negligible effect on excised intestines. Appropriately the chemists conclude that prunes do not owe their laxative action to caffeic acid. Other active principles appear to be absent. Physicians and housewives will breathe a sigh of relief; prunes are to remain just prunes.

Regrettable for medical science, however, is the premature and unwarranted use of medical authority and prestige for commercial exploitation of the public. Regrettable, too, that commercially supported therapeutic research cannot free itself of the suspicion of questionable motives.

HIGH SCHOOL DISCUSSION OF STATE MEDICINE

The advocates of establishment of state medicine in this country are carrying on a subtle propaganda to instil into the minds of the rising generation the belief that such a system should be accepted. Through the instrumentality of the Rosenwald Foundation and the Pollak Foundation this subject has been slated for debate among one hundred thousand high school boys and girls in most of the states in all sections of the country. The subject is presented as follows: "Resolved, that the several states should adopt a complete system of medical care available to all people, at public expense." No one can object to the discussion of this question on the part of anyone interested in it, whether old or young. In the spirit of fairness, however, it should be demanded that the negative side of the debate should be provided with data as well as the positive. It has been stated that the proponents for this widespread debate have prepared a wealth of material to convince auditors that the affirmative should be accepted by the people of our country.

Undoubtedly many people will consult their family physicians as to their views regarding this question. Since its advocates will probably be abundantly supplied with positive arguments, it will be wise for the medical profession to be prepared to offer information and arguments when called upon to do so. In order to meet this demand the American Medical Association has prepared handbooks containing material that will make available the views of organized medicine on this subject. Also a series of pamphlets has been published, featuring phases of this problem that will be useful for debaters favoring the negative side of the discussion. All of this material can be obtained from A.M.A. headquarters.

ANOTHER GRAFT ON THE DOCTORS

Gratitude should be expressed to Portland Better Business Bureau for a special report which it has issued on W. B. Mayo Laboratories, 3733 Wilshire Blvd., Los Angeles, which is in reality an Oregon corporation, whose purpose is to work a graft on susceptible members of the medical profession. In these days of limited income and difficulty in adequate financing, doctors may be found who will prove to be sufficiently pliable suckers to swallow this bait. The report on this corporation is as follows:

1. Emerson, G. A.: Laxative Principle in Prunes. *Proc. Soc. Exper. Biol. & Med.*, 31:278-281, Nov., 1933.

2. Mrak, E., Fessler, J. and Smith, C.: Caffeic Acid in Prunes and Its Behavior as a Laxative Principle. *Science*, 82:304, Sept. 27, 1935.

The above named organization first came to our attention a few weeks ago when the following advertisement was published in the local newspapers:

"Man wanted. Marvelous opening for man of good personal appearance and education, clean habits and forceful personality to represent a nationally known Corporation. An exceptional opportunity for a man who wants to work and can produce results. Unless you are capable of earning \$200 per week, or more, do not apply. This is a real job for a real producer on a real spectacular deal. Phone Mr. R. A. Roberts, Tuesday morning, Portland Hotel"

Men who answered this advertisement were offered a job calling on doctors, representing that they were from a high class pharmaceutical house manufacturing and distributing a product known as "Dr. W. B. Mayo's Formula," which is for the relief of an acid condition of the stomach. The salesman was to induce the doctor to become a consultant physician for the concern and to pay the company \$200. In return for this \$200 it is represented that the physician would receive a proportionate part of 5 per cent of the profits of the company anywhere in this state. The physician was also to receive a part of the business created through the company's radio broadcasting activities. The company represents that its radio program not only is beneficial to the doctor because it stresses going to him for advice, but develops direct business through turning of the people who make inquiry of the company to the physicians who become associated with it. Apparently there is no limit to the number of consultant physicians that the company wishes to appoint in this territory. It further appears that the home address of the concern is at Medford, Oregon, although its principal address or place of business seems to be at the above address.

Dr. W. B. Mayo doesn't appear as an officer of the concern, probably because it is reported by the chief investigator of the State Medical Board of California that he was tried and found guilty of violating the State Medical Practice Act in connection with an abortion case. He was given probation. Recent attempts to serve Dr. Mayo to answer charges of violation of probation have failed.

According to information furnished to our Los Angeles office, the company plans to spend up to \$1,000,000 in radio advertising. Each advertisement will contain a boost such as the following: "Now-a-days people realize that he can help them maintain good health. Why wait until you are sick to call your doctor? Upon request and without any obligation whatsoever on your part, Dr. W. B. Mayo Laboratories will gladly suggest a reputable physician in your community." Of course, the physician will be one who has invested \$200 in the concern.

While the company promises to return the doctor's investment from 5 per cent of its gross business each year, it should be noted that, should the firm be successful in obtaining money from 5000 doctors and should it also be successful in selling a million dollars worth of its products each year, it would take twenty years before the doctor would get his money back on the deal.

This entire proposition seems to be a come-on to tie up the legitimate business with the exploitation of a nostrum. No claims have been made that "Dr. W. B. Mayo Formula" is harmless, nor has it been definitely proven if it is harmful. It is supposed that these tablets contain bismuth subnitrate. The concern, while an Oregon corporation, is not in

good standing with the Corporation Department for failure to file a report for the fiscal year as of June 30, 1935, and for failure to pay its annual license fee for the present fiscal year ending June 30, 1935.

This report is published in full for the enlightenment of physicians in states other than Oregon. If the promoters receive sufficient encouragements from results in this state, undoubtedly physicians elsewhere will hear from them.

SOCIETY MEETING REPORTS

One of the most important functions of the state medical association journal is service in recording the proceedings of meetings. Naturally the most prominent of such reports is that covering annual meetings. This journal extends this service to the state associations of Oregon, Washington and Idaho, which it represents. The annual reports of their respective meetings are published whenever received from the different association secretaries. Thereby are recorded in permanent form the transactions and reports of the activities of each organization in accordance with its annual program.

In addition to the reports of these state meetings there are those of the county medical societies, many of which are worthy of record, the publication of which serves as an indication of the scientific activities among the live societies of each state. During the past years it has been the desire and purpose of this journal to act as a medium for publication of these county society reports, whenever they have been received for that purpose. At this time the journal management desires to repeat the announcement made on previous occasions that it is prepared to publish the reports of these county society meetings, if the secretaries of each will interest themselves to the extent of presenting the monthly reports of their organization meetings. In order to insure insertion in the following month's issue reports should be received by the twenty-fifth of each month.

NATURAL CONCEPTION CONTROL. In discussing the factors governing the periodicity in the fertility and sterility of women, Leo J. Latz, with the technical assistance of E. Reiner, Chicago (*Journal A.M.A.*, Oct. 19, 1935), states that the life of the sperm cell within the female genitalia is less than forty-eight hours. The most important factor influencing the length of the fertility of the spermatozoa in a harmful way is the body temperature within the vagina. The ovum can be fertilized for only a few hours after ovulation. Ovulation occurs on the fifteenth day before the beginning of the next menstruation, according to Knaus, and between the twelfth and the sixteenth day before the commencement of the next menstruation, according to Ogino. The fertile period in cycles of from twenty-one to thirty-eight days is depicted graphically according to Knaus and its modification is advised by the author.

MEDICAL NOTES

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission has announced open competitive examinations as follows:

PUBLIC HEALTH CONSULTANTS

Applications for various grades of public health consultants, and for public health research assistant, must be on file with the U. S. Civil Service Commission, Washington, D. C., not later than November 25, 1935. Optional subjects for the consultant positions are: Maternal and child health, general public health practice, and orthopedics. The specialty for the research assistant is maternal and child health.

Entrance salaries for the consultant positions range from \$2,600 to \$4,600 a year. The entrance salary for research assistant is \$2,000 a year. These salaries are subject to a deduction of $3\frac{1}{2}$ per cent toward a retirement annuity.

Vacancies in these positions in the Children's Bureau, Department of Labor, and in the U. S. Public Health Service, Treasury Department, both in Washington, D. C., and in the field, will be filled from these examinations. Certain education and experience are required.

Full information may be obtained from the Secretary of the United States Civil Service Board of Examiners at the post office or custom house in any city which has a post office of the first or the second class, or from the United States Civil Service Commission, Washington, D. C.

OREGON

A POSTGRADUATE INSTRUCTION COURSE for men of the Northwest who are specializing in diseases of eye, ear, nose and throat is being planned in Portland for next spring under the combined auspices of the Oregon Academy of Ophthalmology and Oto-Laryngology and of the Medical School of the University of Oregon. Arrangements are as yet incomplete, but assurance has been given of the presence and participation in the course of Drs. John E. Weeks of Portland, Harry S. Gradle of Chicago, W. L. Benedict of Rochester, Minnesota, on the Eye; and W. P. Wherry of Omaha and possibly M. Lierle of Iowa City on the Ear, Nose and Throat. The departments of Anatomy and Pathology of the University of Oregon Medical School will also participate. Detailed announcement will be made later. Dr. A. B. Dykman, Medical Dental Building, Portland, is chairman of the committee in charge of all arrangements.

TREATMENT OF RECTAL CANCER. Last month an interesting lecture was delivered before the county societies in Portland, Tacoma and Seattle by Alfred Strauss, surgeon of Michael Reese Hospital, Chicago. He described his successful treatment of cancer of rectum and stomach by electrocoagulation. This included operations on eighty rectal cancers with surprising disappearance of the tumors and absence of metastases. Subsequent death from other diseases in some cases gave positive evidence of these results. The lecture was supplementary to the recent publication of Dr. Strauss' paper in an issue of the Journal of the American Medical Association. The doctor has many old friends in Seattle who were his contemporaries at the University of Washington where he was a famous football player.

APPOINTED TO ADVISORY COUNCIL. R. B. Dillehunt of Portland, Dean of University of Oregon Medical School, has

been appointed to the advisory council of orthopedic surgeons of Georgia Warm Springs Foundation. This appointment was made at the Infantile Paralysis Conference with President Roosevelt as one of the vice-presidents of the association. The advisory council includes seventy surgeons from various parts of the United States. The Foundation proposes to inaugurate a program of attack upon poliomyelitis.

HOSPITAL CONSTRUCTION WORK TO BEGIN. As a result of state appropriations and federal grants it is expected work will soon begin on the tuberculosis hospital at Salem, including a nurses home for which \$102,355 will be spent. The Eastern Oregon Tuberculosis Hospital at The Dalles will be enlarged at an expenditure of \$27,270.

HOSPITAL BIDS CALLED. Plans for a two story addition for male patients at the State Hospital at Salem have been approved and bids for construction have been called. The new building will give an addition of two hundred eighteen beds and will cost \$181,000.

BEQUEST TO ATTENDING PHYSICIAN. Last month a grateful patient left a bequest to Eugene W. Rockey of Portland, amounting to about \$8000, comprising a variety of property. It was specified that it was to be used to further research work in the battle against cancer, from which the patient had suffered.

ALFRED H. JOHNSTON, who has practiced for some time at Oregon City, has moved to Portland where he will be located for future practice.

WEDDINGS. Albert A. Grossman and Miss Jeannette Hughes of Portland were married in Seattle, September 21. Dr. Grossman will continue practice in Portland. William B. C. Panton and Miss Sue Herington of Portland were married in that city, September 25.

WASHINGTON

SEATTLE SURGICAL SOCIETY held its fall clinic October 12 in the auditorium at Harborview Hall, King County Hospital, Seattle. Papers were presented by thirteen members of the society, covering a wide range of surgical conditions, each being followed by an interesting discussion. Following a dinner at New Washington Hotel, a symposium on intestinal obstruction was presented, different phases of the subject being discussed by four of the members, followed by general discussion.

HOSPITAL ADDITION APPROVED. The Public Works Administration has approved the project for additional construction at Eastern State Hospital, Medical Lake. Plans have been made for a men's ward building to cost \$325,000 and a woman's ward to cost \$129,000. The state is expected to pay 45 per cent of these sums, payment of which will come from the \$10,000,000 bond issue voted at the last legislative session.

CONSTRUCTION OF SCHOOL FOR THE BLIND. Bids have been called for construction of a building for the proposed State School for the Blind at Vancouver. Plans call for a building 85x233 feet, one story high, with partial second story. Beside class rooms, play rooms, dining rooms, etc., there will be a hospital unit with two four-bed wards, with customary administration rooms. The cost of this building will be about \$70,000.

HOSPITAL CONSTRUCTION DELAYED. Notwithstanding the fact that government officials had decided on the Belling-

ham site for the psychiatric hospital to be known as "West Coast Hospital Unit," latest information states that construction has been postponed at least for this year, the reasons for which have not been disclosed. At present it is not known when this contemplated great institution will be constructed.

APPOINTED SCHOOL PHYSICIAN. Arthur E. Wade of Seattle has been appointed to the office of school physician in place of Ira C. Brown, who has been given an indefinite leave of absence. Dr. Brown has occupied this position for the past twenty-two years. He established the system of medical examination and inspection in Seattle public schools which he has administered during this period. He has had an enviable record for successfully carrying on this school work and establishing it on a firm basis.

ELECTED TO PRESIDENCY. At the meeting of Western Orthopedic Association, held at San Francisco, Oct. 25-26, Roger Anderson of Seattle was chosen President-elect to serve as president in 1937, when the Association will meet in Seattle.

DEPUTY HEALTH OFFICER. W. W. Brand of Prosser has been appointed deputy health officer by the county commissioners. He succeeds J. H. Millhouse. His territory includes Prosser and Benton City district.

CECIL E. BURK, who has been instructor in Loma Linda Medical College at Los Angeles during the past five years, has located at Roslyn where he will maintain future practice.

J. W. MALZACHER, who has practiced for several years at Cottonwood, has moved to Palouse where he will continue further practice.

IDAHO

STATE HEALTH OFFICER FOR IDAHO. According to the announcement of Governor Ross a specially trained public health officer will soon be appointed. The establishment of this office will be made possible by an appropriation from the Rockefeller Foundation which has agreed to match funds for this purpose set aside at the recent legislative session. The governor stated several names are under consideration and the final appointment would soon be announced.

HOSPITAL ADDITION PROPOSED. The crowded condition of Mercy Hospital at Nampa has resulted in making plans for an addition to cost about \$50,000. It will be a two story and basement addition about 170 feet in length. It will provide a maternity ward, single and double rooms with accommodations for nurses. The project awaits final approval from national headquarters of the Sisters' order.

INFIRMARY AT STATE UNIVERSITY. President Neale of the State University at Moscow announced receipt of information that the PWA had allocated \$118,182 for the construction of an infirmary at the University campus. Forty-two per cent of this sum will be an outright grant from the government, the remainder being a loan which will be cared for by a bond issue.

WEDDING. George O. A. Kellogg and Miss Emma D. Jensma of Nampa were married in Boise, September 27.

OBITUARIES

DR. GEORGE COLLISTER of Boise, Ida., died October 18, after an illness of several months, aged 79 years. He was born in Willoughby, Ohio, in 1856. After studying at Ohio State University, he received his medical degree from Cleveland University of Medicine and Surgery in 1880. He practiced for a year at Madison, Ohio, and then located at Boise where he practiced for fifty-four years, during which time he was absent from practice for less than six months. He was interested in horticulture, owning a peach orchard in Boise valley. He was active in civic affairs, serving twice on the city council. On several occasions he served as city and county physician and also was physician for the Idaho State Penitentiary and the Soldiers Home. He was past-president of the state medical association and at various times served on many society committees. He was beloved by a wide circle of friends and patients whom he had served and cared for during the past half century.

DR. PAUL WILLIAM SWEET of Centralia, Wash., died October 22 from cerebral hemorrhage, aged 56 years. He was born in Holton Kansas, in 1879. He graduated from Ohio Wesleyan College, Delaware, Ohio, receiving the B.A. degree in 1902. As result of certain family connections and experiences in illness, he believed that the future of medicine was centered in osteopathy. Accordingly, he attended the School of Osteopathy in Des Moines, Iowa, from which he graduated in 1905. Before graduation, however, he decided he had been wrongly informed and could never be satisfied with this form of practice. Accordingly he entered Jefferson Medical College from which he received the M.D. degree in 1907. After serving as interne at Lakeside Hospital, Cleveland, and Methodist Hospital, Philadelphia, he practiced for several years in Tacoma and Selleck, Wash. Then he received a fellowship in surgery at The Mayo Clinic, where he remained for three years. In 1920 he located in Seattle where he practiced for two years. In 1922 he purchased the Lee Scace Hospital in Centralia, where he practiced until his death. He was obliged to give up active practice in 1933 in consequence of a cerebral hemorrhage, recurrence of which was the cause of his death.

DR. ROBERT H. CAMPBELL of Vada, Wash., died October 20 as a result of cerebral hemorrhage which occurred several months ago, aged 66 years. He obtained his medical degree from College of Physicians and Surgeons, Boston, in 1906. He was well known in Lewis County where he had practiced for many years and was also active in civic and political affairs.

DR. WILLIAM DOUGLAS of Fairfax, Wash., died suddenly of disease of the heart, September 23, aged 66 years. He was born in Chatham, Ontario, in 1869. He obtained his medical degree from University of Toronto in 1895. Formerly he practiced at Port Angeles, Seattle and Enumclaw. On account of heart ailment he retired from active practice several years ago.

REPORTS OF SOCIETY MEETINGS

OREGON

JACKSON COUNTY MEDICAL SOCIETY

Pres., C. A. Haines; Secty., D. H. Findley

Jackson County Medical Society held a meeting in Medford, October 16, in connection with a dinner party at the home of Dr. and Mrs. R. W. Sleeter. At the scientific meeting, with President C. A. Haines presiding, a paper was read by F. J. Moffatt on "Eczema."

LANE COUNTY MEDICAL SOCIETY

Pres., C. E. Hunt; Secty., E. D. Furrer

A regular meeting of Lane County Medical Society was held at Eugene, Friday, October 18, at Hotel Osburn. Thirty-five members were present.

The paper of the evening was given by John C. Evans of Oregon State Hospital, Salem, on the subject, "Problems of Oregon State Hospital as they Affect the General Practitioner."

WASHINGTON

KING COUNTY MEDICAL SOCIETY

Pres., R. L. Zech; Secty., F. H. Douglass

A regular meeting of King County Medical Society was held in the auditorium of Medical Dental Bldg., Seattle, October 7, at 8:20 p.m., president Raymond L. Zech presiding. Minutes of the regular September meeting were read and approved.

President Zech announced the fall clinical meeting of Seattle Surgical Society to be held at the auditorium of Harborview Hospital, October 12.

John E. Nelson and Frederick Slyfield presented a symposium on "The Control of Tuberculosis." Under diagnosis, Dr. Nelson discussed history, physical examination, laboratory work and roentgen studies. On each of these he mentioned the features which should be expressly stressed in order to get the most information. Under treatment, Dr. Slyfield discussed general care, symptomatic and special treatment. Especial reference was made to food, fresh air, prophylaxis, climate and sanatorium treatment. Symptomatic treatment is directed toward cough, hemoptysis, constipation and fever. Under special treatment were discussed pneumothorax, pneumolysis, phrenectomy and thorocoplasty. There was discussion by Leslie P. Anderson of Oakhurst, H. E. Nichols and H. H. Canfield. Under this program all modern phases of the treatment of pulmonary tuberculosis were presented and discussed.

F. J. Clancy, chairman of Public Relations Committee, spoke on the propaganda employed by social medicine minded organizations. J. F. Dean warned the members against the efforts of certain philanthropic groups whose ultimate object is promotion of state medicine.

Klickitat County Medical Society

Pres., D. V. Ogievsky; Secty., F. G. LeFor

A meeting of Klickitat-Skamania Counties Medical Society was held at White Salmon, September 27. All members were present. The change of name of the organization was adopted from Klickitat-Skamania Counties to Klickitat County Medical Society as there are no members in the

group residing in Skamania County. It was voted unanimously to send the sum of \$25 to the State Association to aid in the beginning of the special state association fund of \$25,000 to defray the expense of the educational and other activities of the state organization.

The annual election of officers selected the following: President, D. V. Ogievsky, Klickitat; Vice-President, W. H. Warner, White Salmon; Secretary-Treasurer, F. G. LeFor, Goldendale. The officers of the organization will act in the capacity of Medical Executive Committee in dealing with S. D. P. W. Medical Aid Program and the State Medical Bureau. The Auxiliary to County Medical Society was organized. Mrs. Allen Bonebrake was elected President and Mrs. J. R. Barber Secretary-Treasurer. The medical society planned at this meeting to conduct an active campaign for control of smallpox in the county with the aid of Auxiliary and in cooperation with other friendly organizations.

PIERCE COUNTY MEDICAL SOCIETY

Pres., J. R. Turner; Secty., W. B. Penney

The regular meeting of Pierce County Medical Society was held in Medical Arts Building, Tacoma, October 8, J. R. Turner, President, in the chair. Minutes of previous meeting were read and approved.

B. A. Brown, speaking on "Spinal Anesthesia," gave a historical review of its development, tracing it to modern times. He also gave a report of the cases operated upon under spinal anesthesia at the County Hospital during the last few years.

C. W. Whitaker presented a paper covering the use of rectal anesthesia, confining his remarks to a report of his use of this method in obstetric cases.

H. G. Willard discussed the use of intravenous anesthesia, limiting his remarks to the use of evipal and stressing its advantages as a complete anesthesia for short hospital operations.

The papers were discussed by T. B. Murphy and C. R. McCreery.

Applications of B. D. Harrington and G. A. Moosey were balloted upon and they were unanimously elected to membership.

WALLA WALLA VALLEY MEDICAL SOCIETY

Pres., J. C. Lyman; Secty., C. J. Johannesson

The regular monthly dinner meeting of Walla Walla Valley Medical Society was held at Grand Hotel, Walla Walla, October 9. Thirty-six physicians were present. Dr. Rudolf Clemen, president of Whitman College, gave a most interesting and valuable address regarding Whitman College, its educational features and its importance to the Northwest. The Society entertained a motion to amend the by-laws and proposed the election of a Board of Trustees to be voted on at its next monthly meeting, November 14.

The annual election of officers was held, and the following physicians appointed: President, John C. Lyman, Walla Walla; Vice-President, V. G. Backman, Pasco; Secretary, Carl J. Johannesson, Walla Walla; Treasurer, J. E. Vanderpool, Walla Walla (re-elected); Board of Censors, Elmer Hill, F. C. Robinson, and W. V. Frick; Delegate to State Convention 1936, E. J. Rhoades; Alternate Delegate, Elmer Hill.

STATE DEPARTMENTS

OREGON

RECENT ACTIONS OF THE COUNCIL

Portland, Ore., Oct. 24, 1935.

The Federal Survey of Disabling Illness, contemplated under the direction of U. S. Public Service as a Works Progress Administration project, was discussed at the October meeting of the Council. Ralph A. Fenton, Trustee of the American Medical Association, reported the recent discussion of this and other projects by the Board of Trustees. Dr. Fenton stated that three projects had been planned: (1) A Survey of Disabling Illness among the general population under the supervision of the Public Health Service to be conducted in nineteen states, of which Oregon is one. (2) A Survey of Professional Service, including physicians, under the supervision of the Bureau of the Census. (3) A Survey of Disabling Illness among the Indian population under the supervision of the Bureau of Indian Affairs.

Dr. Fenton stated that the reason for the conduct of these surveys had been announced as primarily to provide employment for "white-collar" workers now on relief rolls. He said that the Survey of Disabling Illness among the Indian population did not particularly concern the organized medical profession, but the Board of Trustees were concerned as to the purposes behind the other two surveys.

He stated that a representative of the Public Health Service had appeared before the recent meeting of the Board and had outlined the scope of the Disabling Illness project and the methods to be used. The reason given for the survey by this representative was that it was designed to supplement existing information gathered in previous surveys and to provide employment to enumerators, clerks and other clerical help. It was stated that the results of the survey would not be available in published form for some eighteen months. Dr. Fenton stated that, as a representative of the Board of Trustees, he was in communication with Senator Charles L. McNary, minority leader in the Senate, in an effort to learn whether other purposes were behind the survey, such as the collection of data for use in promoting compulsory sickness insurance.

Dr. Fenton called attention to the fact that an enumerator would first call at the home of the person in order to obtain information concerning disabling illness and that the patient's physician would be subsequently asked to check this information, a nominal compensation to be paid the physician for this service. He stated that the physician could not legally give any information concerning his patients without a written waiver signed by them, as such action would violate the confidential relation between physician and patient. He urged that physicians be informed through their local medical societies concerning this point and advised insistence on a written waiver before supplying information to the enumerators.

The Council approved the appointment by President Massey of an advisory committee to the Oregon Supervisor of the Survey on Disabling Illness, consisting of C. H. Manlove, Ralph A. Fenton, and John H. Fitzgibbon.

The Council has voted to carry out the recommendation made by the general society at the Gearhart session, providing that the Society shall hereafter pay the expenses of

the Delegate to the American Medical Association incurred in the discharge of his duties.

The Council has authorized the reprinting of 1000 copies of the Minimum Industrial Fee Schedule of the Society and requested the Committee on State Industrial Affairs to check the schedule to ascertain whether changes in some items might not be desirable.

The Council has authorized the publication of the bulletin, "The Medical Reporter," for another year under the direction of a committee selected and appointed by President G. A. Massey.

The Council has voted to refer to the Executive Committee the invitation of the Mid-Columbia Medical Society to hold the 1936 session at The Dalles as well as any other invitations which might be received.

The Executive Committee of the Council has referred to the Committee on Public Policy the assignment of formulating a statement of principles upon which the future co-operation of the Society and its component societies with lay health organizations may be based.

The Council has discussed the new radio programs which have been developed by the American Medical Association in cooperation with the National Broadcasting Company. These programs are of a new type, portraying in vivid dramatic form with incidental music the subject of "Medical Emergencies and How They Are Met." Oregon physicians are urged to call these programs to the attention of their patients and friends. The time is 2 p.m. every Tuesday over KGW and other NBC stations.

The Council has accepted the invitation of Charles E. Hunt, Councilor for the Third District, to hold its November meeting at Eugene on Saturday, November 9, the date of the University of Oregon-Oregon State College football game.

MEDICAL RELIEF

Attention is directed to a recent communication from the Secretary of the American Medical Association indicating the probable early termination of direct relief, including medical care, at the expense of the federal government.

Your committee has been in touch with the State Emergency Relief Administration and understands there will be no change in the present method of providing medical care to families on direct relief. Members of these families who require medical care will continue to receive such care in accordance with the arrangement made with the State Relief Committee by the Oregon State Medical Society in October, 1934. State funds appropriated for unemployment relief by the 1935 Legislature will be used for this purpose.

Your committee has also been in touch with Oregon Works Progress Administration which has charge of all work relief and has supplied the officials in charge with a list of physicians in private practice in every county, indicating whether each is a member of the Oregon State Medical Society. It is our understanding that WPA workers injured in the course of their employment will be given free choice of physician from the county list submitted by your committee. Officers of component societies are urged to report as to whether the principle of "free choice" is being observed.

It should be recognized that workers employed on WPA projects are under the protection of the U. S. Employees Compensation Commission and medical care is only provided for injuries arising from employment. However, in cases where the earnings of the family are insufficient to pay for medical care for sickness or injury not related to employment, we understand that needed service may be provided by the county relief committee under the approved medical relief program as is the case with persons on direct relief.

THOMAS WYNNE WATTS,
Chairman, Medical Advisory Committee on Relief.

WOMAN'S AUXILIARY

The ninth annual meeting of Woman's Auxiliary to Oregon State Medical Society held in Gearhart, September 19 to 21, was a decided success. Seventy-three members and fifteen visitors registered, showing an increased interest in the work of the organization. Mrs. J. B. Blair, of Vancouver, president of Woman's Auxiliary to Washington State Medical Association, was a special guest at the meeting.

Dr. Edith Sappington of San Francisco, regional consultant for the United States children's bureau, was the principal guest speaker on the three-day program. She discussed phases of the new social security act that bear on maternal and child health, crippled children and child welfare, dealing particularly with problems in this region.

The first session was called by the president, Mrs. John G. Abele, in the sun parlor of the Ocean House, at 11:00 a.m., September 19. The address of welcome was given by Mrs. Leon W. Hyde, president of the Clatsop-Tillamook Auxiliary, hostess group for the meeting. The response was given by Mrs. Vernon A. Douglas of Salem. Following the reading of reports by state officers, a nominating committee was appointed. At the luncheon honoring the advisory council, Mrs. Abele read her fine report. Drs. A. M. Webster, G. A. Massey and Charles E. Sears were honored guests at the luncheon. They spoke of the very fine work that the auxiliary is carrying on and asked for continued cooperation and help in future problems.

At the afternoon's business session were reports of the standing committees. A diversion of the convention was the

Mystery Dinner, at which fifty-nine guests depicted bathing beauties of the gay 90's. The Dionne Quintuplets skit and the models of famous historical characters enacted by members of the Clatsop group were very cleverly presented.

The annual Founders' Breakfast, at which the auxiliary honored the first president, Mrs. J. Earl Else, and charter members, was Friday morning's feature. The business sessions were again resumed and reports of county presidents and the following special committees were read: Cancer Control, McLoughlin House, Safety, Resolutions, Registration and Credentials.

The election of officers was held and Mrs. William F. Patrick, chosen president-elect last year, stepped into the presidency. Other officers are: president-elect, Mrs. E. D. Lamb, Klamath Falls; first vice-president, Mrs. George H. Bendshadler, Portland; second vice-president, Mrs. W. G. Homan, Burns; third vice-president, Mrs. Wilbur A. Cartwright, Gold Beach; fourth vice-president, Mrs. Ronald C. Romig, Eugene; recording secretary, Mrs. Eugene Kelley, Corvallis; treasurer, Mrs. Frederick Stricker, Portland; auditor, Mrs. Charles W. Lemery, Medford. The new board of directors who will serve for two years are: Mrs. Charles T. Sweeney of Medford and Mrs. O. C. Hagmeier of Astoria. Mrs. Carl W. Emmons of Salem and Mrs. N. L. Tartar of Corvallis are directors serving their second year.

The tea at the home of Mrs. L. M. Spaulding and a tour of the points of interest particular to Astoria and Seaside were but a few of the many activities as entertainment features of the meeting on Friday afternoon. At 8 o'clock in the Gearhart Hotel, the annual joint banquet was held, an outstanding social event of the convention.

At the final business session Saturday morning the installation of officers took place. Mrs. Patrick announced the standing committees who will serve with her this year.

A golf tournament, which gives promise of being one of the high lights of the annual meeting, was held Saturday morning with many of the members participating. The annual trophy presented by Mrs. John G. Abele, the retiring president, went to Mrs. Merle G. Howard of Eugene (Lane County). Mrs. F. H. Vincil of Astoria, won the low gross score. The Dalles was selected as the 1936 convention city.

MRS. RAYMOND T. KAUPP,
Chairman of Press Publicity.

IDAHO

TO THE IDAHO PROFESSION

Lewiston, Ida., Oct. 23, 1935.

The forty-third annual meeting of the Idaho State Medical Association in Boise, September 9-13, was the best of our Association to date. This was, of course, due to the untiring efforts and hard work of our President, Charles R. Scott. We have him to head our Program Committee again next year, so we can all look forward to something unusual at Boise in September.

Very shortly I expect to meet with all the component

Societies and at that time meet all the members and also all doctors who are not members of our State Society. I have two or three things which I wish to say a few words about and in return get all your ideas on the subjects. I am sure it will be a pleasure for me to serve you as President of our State Association but I do wish your cooperation in the fullest and also at all times ask your criticism if justified.

JOSEPH H. CRAMPTON,
President Idaho State Medical Association.



BOOK REVIEWS

PEDIATRIC TREATMENT. A Manual of the Treatment of the Diseases of Infants and Children Designed as a Reference Work Especially for the General Practitioner and Physicians Entering the Field of Pediatrics. By Philip S. Potter, A.B., M.D., F.A.A.P. Chief of the Pediatric Service of the University Hospital of the Good Shepherd, Syracuse, N. Y., etc. 580 pp. \$5.00. The Macmillan Company, New York, 1935.

This book is published for the use of the general practitioner who practices largely with children. It would be a great advantage to senior medical students and the young physician entering practice, and many of the procedures would be of value because it shows how they may be employed in the home. The author deals in detail with the treatment of all conditions of childhood. He discusses forms of special treatment, such as serotherapy, vaccine therapy, therapy actino and so forth. Many of the procedures would apply to the general nursing of the child which are also given in detail and would be of value in instructing the mother. There are sections on therapeutic procedures, such as inhalations, anesthetics, injections, gavage, intubation and tracheotomy, also emergency treatment and pharmaceuticals. The section on nutrition is up to date and covers all modern methods of infant feeding and is a composite picture of the methods used by leading pediatricists. Treatment of the disorders of metabolism are dealt with in comprehensive detail. There is a very interesting section on treatment of abnormalities and accidents of the newborn. The treatment of all medical conditions of childhood are considered. The section on diseases of the eyes, ears and skin is one of the most interesting. The treatment of infectious disease should appeal to all physicians caring for children. In the appendix there is a list of prescriptions valuable in a large variety of conditions and taken from the practice of prominent physicians in the country.

SPICKARD.

THE TREATMENT OF DIABETES MELLITUS. By Elliott P. Joslin, M.D. (Harvard), M.A. (Yale). Clinical Professor of Medicine, Harvard Medical School, etc. With the Co-operation of Howard F. Root, M.D., Priscilla White, M.D., Alexander Marble, M.D. Fifth Edition, Revised and Rewritten. 620 pp. \$6.00. Lea & Febiger, Philadelphia, 1935.

The world has long acclaimed the author as its greatest contributor to the literature on diabetes mellitus. If we sit in the European clinics, it is to hear our own colleague quoted. It is again our privilege in this book to participate in the benefits of this vast experience, so generously offered. To those who are interested in the metabolic field, there is presented a physiologic review, a panorama of successive changes occurring in diabetes, visualized and expressed by one who, while conservative, has had the pleasure of living through and experiencing an epical change.

The new we shall see, mingling its visionary conceptions with the conceptions of the old. Such pointed, dramatic views as experienced in the epical changes of the past thirteen years in this field do not come often in the chosen realm of our labors. How stimulating when those who are capable of contributing the background are willing to do so. In this volume we see the newer contributors coming into the field and the influence of their personalities is felt in the collaborators. As a text, all phases of the subject are covered with most excellent statistical tables, case study reviews and photographic studies.

HOFRICHTER.

THE DOCTOR AND THE PUBLIC. A Study of the Sociology, Economics, Ethics and Philosophy of Medicine, Based on Medical History. By James Peter Warbasse, M.D., Author of "Surgical Treatment," "The Conquest of Disease," etc. Illustrated. 572 pp. \$5.00. Paul B. Hoeber, Inc., New York, 1935.

The author states that the purpose of this book is to correlate medical science and the public welfare. Considering medicine as a social force he discusses social trends as influences on the evolution of medicine. It aims to bridge the space between medical science and public interest. He witnesses the expansion of the function of the political state with dread and misgiving, even though such expansion is called social. Several chapters are devoted to a review of medical development from the dawn of history. There is a review of its progress through the Greek period when mysticism gave place to science. Newer knowledge acquired during the sixteenth and seventeenth centuries is considered and the changes produced by the advance of learning. An interesting chapter deals with medical progress in the eighteenth century and the development of fads and cults, indicating that the present popular pseudomedical phases of practice merely repeat similar events in past history. Discussions of vaccination, anesthesia, antiseptics and other great medical discoveries show the benefits of medicine in promoting public welfare. These are particularly summarized in the chapter, "A Scientific Age Develops a Medical Culture." Demonstration of an educated medical profession on cultural life of the people is displayed in the discussion of medicine in art, science, business and philanthropy. The author illustrates how medicine touches every home by the discussion of birth control, treatment of the insane, the social delinquent and its relation to the administration of justice. Various social relations of medicine are considered. This is an interesting volume for anyone desiring an insight into the manifold relations of medicine to the people of our country.

GROWING SUPERIOR CHILDREN. By I. Newton Kugelmass, M.D., Ph.D., Sc.D. Attending Pediatrician of the Broad Street Hospital, French Hospital, and Heckscher Institute, New York, etc. 568 pp. \$3.50. D. Appleton-Century Company, Inc., New York and London, 1935.

Physicians and parents have been slow to realize the fact that there is no average child. Such a composite of statistics would result in an unrecognizable monstrosity according to the author's figures, and yet the persistent urge of today is to have every child conform to the average in height, weight, mental activity and physical development. The child's individualism from birth through adolescence is stressed throughout in a manner that is intelligent and bespeaks the author's experience at first hand with children and their parents, and makes this a readable and worthwhile book. Apparently designed for the lay reader, the pediatrician and general practitioner will find it of value and of interest. The author will be remembered as the one who recently advocated the gelatin, saline and dextrose "hydrating solution" which he feeds to newly born infants in an attempt to eliminate that initial weight loss most of us have come to look upon as physiologic rather than pathologic.

In his application of the doctrine of individuality and in his fair consideration of endowment plus environment, he has stressed the role of intelligent home care and calls upon parents to supplement but not to displace knowledge

and insight with affection, This is a long carefully written book, one to be studied and not read casually, and though the reader may not find himself in accord with some of the material contained therein, he will have been stimulated at least to think why he does not agree. Such a book is good reading.

Appended is a short glossary, giving definitions of medical terms in language easily understandable by those without a medical background. This work will find an acceptable place in the libraries of all those who desire a better understanding of children.

W. B. SEELYE.

THE SEXUAL RELATIONS OF MANKIND. By Paolo Mantegazza. Translated from the Latest Italian Edition, as Approved by the Author. By Samuel Putnam. Edited with an Introduction by Victor Robinson, M.D., Editor-in-Chief, Medical Review of Reviews, etc. 335 pp. \$3.00. Eugenics Publishing Company, New York, 1935.

In this volume the author has accumulated an astounding mass of information bearing on sexual problems assembled from all parts of the world. Beginning with early records of antiquity he reviews the customs and strange beliefs associated with sexual matters and their bearing on life and social relations as they have developed through the centuries. This study includes many native tribes of Africa, the peoples of South American countries, the South Sea Islands and countries in the Orient. Many strange and remarkable customs existing between the sexes are described in detail. While many of these uncommon relations revert to early history, some of the strangest prevail in this day among certain peoples. Some chapter headings are "Modesty and Chastity in the Races of Man," "The Winning of the Bride," "Purchase of the Wife and Marriage," "Monogamy, Polygamy and Polyandry." In the chapters on perversions

of love are discussed sex perversions from the days of the ancients to modern times, with descriptions of practices of present day pervers. Probably it is not appreciated the extent to which these strange sexual relations have prevailed continuously since days of antiquity. The author does not attempt to evade these practices in his descriptions, nor does he in an offensive manner describe the extent to which sexual life of man is controlled and directed by his passions. One interested in this form of study will find much of historical and factual interest in this volume.

FOOD AND BEVERAGE ANALYSES. By Milton Arlenden Bridges, B.S., M.D., F.A.C.P., Director of Medicine, Department of Correction Hospitals, New York, etc. 246 pp. \$3.50. Lea & Febiger, Philadelphia, 1935.

The author states that "the nutritional demands of the body vary with the age, sex, height and weight of the individual and with the sum total of activity during the twenty-four hours." This book is an analysis of the requirements of food and liquids during various conditions of the human body. There are chapters on carbohydrates, proteins, fats, water, foods and beverages. Their constituents and the body requirements for each are detailed. More than one hundred pages are devoted to "Table of Nutritive and Caloric Values of Foods" which are arranged alphabetically with specifications of carbohydrates, proteins, fats and calories of each. A table of special dietetic foods presents similar information. The chapter on vitamins explains them in alphabetical order, the physiologic function and pathologic effects of each being described. Alcoholic beverages are considered and the value of each presented in regard to alcohol, carbohydrates, protein and calories. Much information is contained in this volume.

Drs. C. B. Ward and Arthur Betts

Announce the opening of a new office in the Medical and Dental Building in Seattle. Dr. Ward has left the Swedish Hospital. He will be in charge of the new office and the policies followed will be similar to those of the Spokane office.

The first therapy installation is already installed. Radium emanations will be used exclusively.

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LATE CONCEPTS OF PEPTIC ULCER ETIOLOGY

AND A PRELIMINARY REPORT OF MODERN THERAPY *

H. M. F. BEHNEMAN, M.D.

SAN FRANCISCO, CALIF.

It is gratifying to realize that we are definitely on the threshold of a new era in the treatment of duodenal and gastric ulcer. I have for your consideration tonight the results of a study of seventeen consecutive ulcer cases treated by the newer methods I shall discuss with you. These results are very satisfactory, but I naturally consider this only a preliminary report of a series I definitely intend to follow through to forty cases. I do not presume for a moment that the drug therapy these patients have received is entirely new to you; however, the schedule as a whole may be different, and the results of another, who has rigidly enforced it with close follow-up observation, may be of interest to you.

The gratification one feels in the success of this late therapy is due chiefly to the fact that this modern treatment has been evolved from a change in our conception of the etiology of ulcer, especially the physiologic chemistry connected with the ulcer formation. I feel that the latter information is as interesting as the results of the therapy. Therefore, I am going to take a few moments for a brief resume of our concept of ulcer formation in the past and present, with some mention of the excellent work being done in animal experimentation.

With a better understanding of the physiologic pathology behind ulcer formation, we can appreciate the results of newer therapy.

First of all, may I stress the most important factor regarding ulcers of the upper intestinal tract, and that is, that gastric and duodenal ulcers are *systemic* diseases, with a local lesion in the form of an ulcer.¹ In the past we have felt that there were three interesting factors responsible for the genesis and chronicity of peptic lesions;² first, the local trauma of the tissues, with the danger of infected emboli; second, the aggression of acid and pepsin and with it the resistance of the tissues to erosion; third, the systemic factors, often neurogenic in origin. We knew in our therapy that we must pay particular attention to all three factors if we wished success. Now, however, in the light of recent research, both in animals and humans, we find an all important fourth factor, that the duodenum possesses a protective mechanism of its own, which is not possessed by the jejunum or any other part of the small bowel.³ Closely enough connected to be a part of this fourth factor is one that could really be called a fifth and a very important one. Research in experimental gastroduodenal ulcer by deviation of the duodenal juices has obliterated this as purely a local problem and proven its relationship to a general disturbance of the metabolism, depending

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3. Mann, F. C., and Kawanura, K.: Duodenectomy (an Experimental Study). *Ann. Surg.* 75:208-220, Feb., 1922.

* Read before a meeting of Humboldt County Medical Society, Eureka, Calif., Sept., 18, 1935.

chiefly upon insufficiency of an important amino acid, namely histidine.⁴

In this capable experimental animal work it was further proven that the organism is unable to synthesize histidine and other amino acids from its own resources, but obtains them from certain food stuffs. We can readily see, then, in our age-old diet restriction with food denial in ulcer treatment that in a way we were creating often a vicious circle, in that we were denying the very food from which these amino acids could be synthesized, and which in turn would make the ulcer more resistant to acid erosion.⁵ Other workers make the following statement: "Four indispensable amino acids, cystine, lysine, histidine and tryptophan, cannot be formed by the organism itself without intervention of food. The others can be formed by spontaneous synthesis."⁶

You can see that I am bringing the duodenum to the fore in this discussion. Its role in the ulcer syndrome has unfortunately been underestimated. The duodenum has a remarkable reserve power to buffer and neutralize acids. Similar to all other organs, however, it has its maximum functional limits and will break down under the stress of uninterrupted flow of acid chyme.⁷

Florey and Harding⁸ did some very interesting work on feeding hydrochloric acid to dogs. They found universally that the first reaction is for the duodenum to pour out copious amounts of secretion. The epithelium would then disintegrate and bleed after a certain amount of punishment had been taken. When, however, the acid flow was stopped the regeneration in the duodenum was remarkable. There is still a difference of opinion as to whether this duodenal mucosa has its resistance in the cells or in the production of a secretion. The majority of workers incline to believe that the mucosa produces secretion, which probably acts on the pancreatic and biliary flow.⁹ When bile, pancreatic and duodenal secretions were cut out, and the gastric contents led into the jejunum, ulcers developed in 96 per cent of cases. That section of the bowel then has almost no resistance, but when

the bile and pancreatic secretion were drained away so as not to enter the duodenum, which was left intact, only 50 per cent of cases developed ulcer. This is adequate proof of the tissue defense of the duodenum.

The work of modern investigators has proven us to be a little mistaken in the all important role we have given bile and pancreatic juice in neutralizing gastric juice and preventing ulcer. We not only have evidence now of the importance of the duodenum itself in its defense secretion, but we have very accurate experimental proof that in sidetracking the flow of bile we definitely develop more ulcers than we do when it is normally present. This undoubtedly coincides with our frequent clinical findings of duodenal ulcer associated with chronic cholecystitis.¹⁰ With these thoughts in mind, the Department of Pathology at Harvard Medical School has some very interesting studies on one hundred ulcer cases coming to autopsy together with one hundred nonulcer autopsies.¹¹ The livers of the ulcer patients showed more marked evidence of pathology than of the nonulcer patients, while studies of the pancreas showed no significant information. Having these facts in mind, the same workers diverted the bile from the duodenum in dogs, easily producing chronic peptic ulcer with resulting injury to the liver. They also proved that there was no disturbance in fat metabolism in ulcer patients.

Foreign workers, as well as Americans, are convinced that the deprivation of these amino acids results in the formation of ulcer.¹² They believe that gastroduodenal ulcers are the result of the loss of equilibrium in the metabolism of the amino acids, due to alterations of the gastroduodenal mucosa. As a result of this and other extensive work we can flatly assert that histidine prevents the appearance of experimental ulcer. How permanently we do not know because the first human cases were treated by Weiss and Aron¹³ only three years ago. The future of this therapy, however, looks very bright from the experiments of others and the short series I have to report to you tonight. In humans, upon what do we base our assertion that this method is better than any yet at our disposal? Principally on two points, the prompt relief of subjective symptoms and the very accurate findings of roentgen

4. Weiss, A. G., and Aron, E.: Role of the Amino Acids in the Evolution of Experimental Ulcer. Influence of Histidine. *Presse Med.*, 41:1880-1883, Nov. 22, 1933.

5. *ibid*: Influence of Injection of Amino Acids (Tryptophan and Histidine) on Evolution of Experimental Ulcers Obtained by Deviation of Duodenal Juices into Terminal Ileum. *Compt. rend. Soc. de biol.*, 112:1528-1530, May 2, 1933.

6. *ibid*: New Orientation of the Problem of Experimental Ulcer. Role of Certain Amino Acids in Pathogenesis and Therapy of Ulcer. *Presse Med.* 41:954, June 14, 1933.

7. Stevens, G. A.: The Capacity of the Duodenum to Neutralize and Buffer Acid. (Thesis) Quoted by Rivers.

8. Florey, H. W. and Harding, H. E.: Function of Brunner's Glands and Pyloric End of Stomach. *J. Path. & Bact.* 37:431-453, Nov., 1933.

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10. Schnitker, M. A. and Hass, G. M.: Histologic Study of Liver in Patients Affected with Peptic Ulcer. *Am. J. Digest. Dis. & Nutrition*, 1:537-543, Oct., 1934.

11. Schnitker, M. A., and Emery, E. S., Jr.: Results of Fat Tolerance Tests and Blood Sugar Estimations Performed on Patients Affected with Peptic Ulcer, with Discussion of Factors Possible in Etiology of Peptic Ulcer. *Am. J. Digest. Dis. & Nutrition*, 1:834-840, Feb., 1935.

12. Devoto, L.: On the Parenteral Treatment of Gastroduodenal Ulcer. Some Chemical Treatments. *Gazz. d. osp.* 55:141-147, Feb. 4, 1934.

studies. The disappearance of pain is merely one argument in favor of this therapy, but the disappearance of the ulcer crater and spasm by radiologic signs is distinctly important.¹⁴

Bulmer¹⁵ reported on fifty-two cases last December treated with this histidine monochlorhydrate. His conclusions were: "Owing to spontaneous remission, final conclusions have not been drawn from this study. Nevertheless, the results seem to be better than those from the more orthodox methods and quicker of achievement. For treatment on ambulatory lines it has much to commend it." Bogendorfer¹⁶ reported in August, 1934, the result of this therapy in thirty ulcer cases. Conservatively concluding, as we all should in such a subject, he states: "A longer observation and scientific experimentation are, therefore, necessary to draw definite conclusions. Both are under way. In the meantime many can be benefited by this new remedy."

Hessel¹⁷ reported last December a series of twenty-two cases, eighteen duodenal and four gastric, including ten pronouncedly inveterate cases, two penetrating and two inoperable because of their size. The diagnosis was confirmed in every case. Subjectively his results were most satisfactory in a surprisingly short time. As to the objective results: "The ulcer was no longer demonstrable in sixteen cases under roentgen control after an average of twenty days of treatment. In the remaining six cases the ulcer was much smaller. A direct failure or stationary condition was not observed."

Let us review for a moment the age-old ulcer treatment of Sippy diet with its alternate milk, cream and powder. The powder served but one purpose, to keep as neutral as possible the secretions leaving the stomach. Have we adequately considered what has undoubtedly been happening in the stomach of these people during the sleeping hours from bed time until awakening, most of them without any powder from seven to nine hours? Has not in a large number of instances the benefit of the day regime been destroyed at night? Here in this new therapy we attack it on a logical basis. "This

site where duodenal ulcers develop is the chemical battleground of the gastrointestinal tract."¹⁸

The fluctuating, neutralizing power of the duodenum is most remarkable. The reaction of the duodenal contents depends on a three-cornered chemical reaction, the respective proportions of pancreatic juice, bile and duodenal secretion. Several investigators, including some in the Mayo Foundation, definitely regard the pancreatic juice as having at least twice the alkalinity of the bile and feel that it is the most important of the three secretions in maintaining the normal reaction of the duodenal contents.^{18, 19} The preponderance of duodenal ulcers is two and a half to one over those of gastric ulcers.

Smithies²⁰ reported a clinical study of five hundred consecutive, operatively demonstrated cases of peptic ulcer. He found that 75 per cent of ulcer patients died from other things than the ulcer and that 25 per cent died from the ulcer or its complications. This amazing ability of three-quarters of ulcer sufferers to live in spite of their ulcers and eventually die of some other cause is due primarily to this remarkable reserve function of the duodenum in its ability to neutralize acids materially in excess of physiologic needs.²¹

Let me stress for the last time, because of its importance in this method of therapy I shall soon outline to you, the fact that loss of bile does not seem to alter the acidity or alkalinity of the duodenal content hardly any, if at all, while in the absence of pancreatic secretion the buffering power of the duodenum is definitely diminished.^{22, 23} It has been shown that this neutralizing capacity of the pancreatic secretion is highest from one to three hours after a meal.²⁴

With these facts in mind one can subscribe to the oft repeated contention that hyperacidity of the stomach has absolutely nothing to do in the actual etiology of a peptic ulcer, although once established it may prolong its course. Moreover, the peptic ulcer syndrome is a reversal of ulcer formation elsewhere. A cross section of a peptic ulcer shows maximum damage to the layers near the serosa and the least damage to the mucous mem-

13. Weiss, A. G., and Aron, E.: Treatment of Gastro-duodenal Ulcer of Man with Injections of Amino Acids (Tryptophan-Histidine), *Compt. rend. Soc. de biol.* 112: 1530-1531, May 2, 1933.

14. Lenormand, J.: Amino Acid Treatment of Gastric and Duodenal Ulcers, *J. de med. et chir. prat.*, 105:113-142, Feb. 25, 1934.

15. Bulmer, E.: Histidine Treatment of Peptic Ulcer, with Note of 52 Cases. *Lancet.*, 2:1276-1278, Dec. 8, 1934.

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17. Hessel, G.: Treatment of Gastroduodenal Ulcer with Histidine, *Munchener Med. Woch.*, 81:1890-1891, Dec. 6, 1934.

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20. Smithies, F.: Notes on Diagnosis and Prognosis in Gastric Ulcer. *Am. J. Digest. Dis. & Nutrition*, 1:697-704, Dec., 1934.

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22. McRoberts, J. W.: Reaction of Duodenal Content after Exclusion of Bile from Duodenum. *Am. J. Digest. Dis. & Nutrition*, 2:293-284, July, 1935.

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brane. It often exists without any ulceration of the mucosa itself. The pathology is in the submucosal tissue, in other words intramural, proving that the process of destruction arises from without the bowel, from above downward, with erosion and often the production of craters. Is not this knowledge enough to reverse our old time method of therapy?

In my first paragraph I stated that ulcer was a systemic disease with the ulcer as the local lesion. Consider for a moment the selectivity of ulcer of this type. The male sex is predominant almost eight to one. The white race seems alone susceptible, with the negro practically immune. Animals do not develop peptic ulcers. Ulcers are confined to a total of five inches of the lesser curvature of the stomach and first part of the duodenum. They are unique in their pathology, as I have pointed out. The long, thin, malnourished, underweight, poorly postured individual is nearly always the victim. And last but not least there is an element of unstable nervous system in 95 per cent of peptic ulcer patients.

A good many workers, principally Robinson,²⁴ feel that the ulcer syndrome is one of neurogenic origin. Robinson explains it on vascular spasm due to vegetative nervous system imbalance. "The lesser curvature of the stomach and duodenum are richest in vegetative nerve supply." The short, stocky and usually merry individual who practically never develops an ulcer is "too jovial to upset his gastrointestinal innervation, so he seldom if ever develops a peptic ulcer." This psychogenic theory of peptic ulcer is interesting and very plausible.

While all this work has been developing that I have just reviewed, other workers approaching from an entirely different angle have contributed what appears to be the most perfect therapy yet to be laid in our hands. This is the work directed toward finding a substance which can be taken by mouth, having a direct buffer or neutralizing action upon the secretions, in place of our old alkaline and neutral powders. Alley²⁵ did some interesting work with surprising results on dogs, concluding that cream and milk at frequent intervals produce a continuous secretion of acid and that cream resulted in more acid than milk. Egg white and butter resulted in small amounts of acid secretion in the stomach, while cream of wheat had the lowest acidity, and liquid cream of wheat completely neutralized any free acid in the dog's stomach.

Some very interesting work has been done by several investigators with okrin as an adjunct in the treatment of peptic ulcer. It has proven to be of definite value in the relief of ulcer pain and has produced a remission in a large number of ulcer patients.²⁶ It is pleasant to take, has no destructive powers, and is a definite demulcent. However, it has been discarded by most workers in favor of the product I shall next mention. In comparison with hog's mucin, olive oil and agar, okrin proved to be the greatest factor in decreasing the emptying time of the stomach, as well as decreasing gastric secretion.²⁷

The most promising work of all, however, has been that on gastric mucin. The pioneer work for this material was carried on by Fogelson²⁸ of Northwestern University, who reported his results nearly five years ago. A few months later Kim and Ivy²⁹ reported their important work in experimental duodenal ulcer and the feeding of gastric mucin. Atkinson³⁰ followed in 1932 with an important contribution, and Rivers³¹ of The Mayo Clinic reported his work in 1933. The Council on Pharmacy and Chemistry of the American Medical Association³² published its report on gastric mucin in March of last year. Jones³³ published his summary of five hundred and fifty-five cases on mucin treatment late last year; 71.9 per cent became symptom-free, 23 per cent were improved and 5 per cent were failures. Of these failures, all but one refused it because of the taste. He then reported a series of two hundred and seventeen cases intractable by other methods. As a result, 63 per cent of these intractable cases showed themselves to be symptom-free; 29.4 per cent were improved, and 7.5 per cent were failures, including some who would not take the powder. A very encouraging report has been made since then.

Before outlining the results of my own observation let me answer the question first of all, what is our aim in treatment? I consider it twofold, to stop, if possible, the acute symptoms and, second,

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24. Robinson, S. C.: On Etiology of Peptic Ulcer. Analysis of 70 Ulcer Patients. *Am. J. Digest. Dis. & Nutrition*, 2:333-343, Aug., 1935.

25. Alley, A.: Effects on Gastric Secretion in Dogs of Various Food Substances Employed in Treatment of Gastric Ulcer. *Am. J. Digest. Dis. & Nutrition*, 1:555-560, Oct., 1934.

to prevent relapses. Then let me ask and answer another question. When is surgery indicated, and what relief does it give compared with medical treatment? First of all I feel that surgery is indicated in patients with a persistent roentgen retention of 25 per cent more on the six-hour examination; second, in patients who continue to bleed, grossly or microscopically; and, third, in ulcers that have perforated with the patient in shock, surgery may be necessary, if hemorrhage cannot be controlled. In answering which gives the greatest relief I may quote Emery³⁴ who followed fourteen hundred and thirty-five peptic ulcer cases in the Peter Brent Brigham Hospital over a period of one to twenty-five years. His conclusion was: "Surgery gives more complete relief but is offset by the higher incident of failure." One very able worker has said: "The finger of the inexperienced surgeon may be less dependable than the eyes of a well trained roentgenologist."³⁵

And last but not least, may I mention the subject of roentgenology in the control and therapy of peptic ulcer? After all, the internist is assuming a great responsibility in not sending many ulcer patients to surgery. He must not be fooled by subjective symptoms. He must not be fooled by the apparent physical condition of the patient. He must rely on roentgen studies. Through them alone can he tell whether the ulcer is healing, penetrating or malignant. Repeated fluoroscopic examination is absolutely essential in case of the slightest doubt, even if it has to be repeated at two-week intervals in serious cases for the first six weeks. Subjective symptoms may often disappear when roentgen findings are the same or worse. Each case of peptic ulcer must be studied individually as a systemic disease. Medical treatment should be given a decent trial, but only with the help of roentgenology. I urge cooperation between the medical man and the roentgenologist in ulcer therapy. My chief reason here for stressing roentgen studies is that a large percentage of ulcers show a niche for a long time after the symptoms are relieved; after all, our chief goal is to prevent remission, and roentgen studies are of great value in determining the progress under treatment. If enough time and effort is given to the cause, complete healing may be shown roentgenologically, and then there is not any doubt.³⁶

With this background I give you this brief in-

terpretation of a combination of these methods of treatment in this preliminary report of seventeen ulcer patients over the short period of a year and a half. It occurred to me when histidine first came on the market, being assured of its usefulness, that a two-fold purpose could be accomplished in combining the histidine treatment, which is by injection, with gastric mucin by mouth. Accordingly I have a report on seventeen patients, varying from two serious cases completely in shock from hemorrhage, to the average ulcer case with few symptoms, but a definite ulcer. All of these diagnoses of ulcer were made from the history, physical, laboratory findings and roentgenologic study in San Francisco. Fifteen were duodenal ulcers and two were gastric. All patients were ambulatory, except the two who had hemorrhage and were hospitalized as an emergency measure for transfusion and the surgery which they refused, because of previous gastroenterostomy.

In each case the histidine preparation used was that of the Hoffman LaRoche Company, sold under the trade name of "larostidin." It is prepared in ampoules of 5 cc. injected intramuscularly, without any local or general reaction, and given daily for twenty-four days in the arm or in the buttock. The mucin used was that of the Stearns Company and was powdered, not granular. It was mixed and given three to five times daily as outlined in the directions enclosed in the package.

All patients were started out on a general soft diet, corresponding to the third week diet of the old Sippy regime, except the two patients in shock who were kept on milk and cream with their mucin and larostidin for a period of four weeks, when they too were allowed soft diet. As time went on this diet was increased until now 70 per cent of them are eating what they please as long as they follow directions of eating slowly, carefully, and omitting alcohol, spices and gross roughage. Some of them are able to take beer without untoward results. All of these people are active and working at either housework, at office work or manual labor. The two cases in shock just a year ago have been working for some months, one of them a dentist with a gastroenterostomy and gallbladder removal and seventeen years of ulcer history behind him.

I am fully cognizant of the fact that time is the essential element. However, the longest have gone a year and a half, and the shortest six months without remission under a regime of activity and food intake unknown in previous ulcer therapy.

34. Emery, E. S., Jr.: Treatment of Peptic Ulcer Based on 1,435 Cases. *Am. J. Digest. Dis. & Nutrition*, 1:520-521, Sept., 1934.

35. Zeitlin, N. S.: Roentgen Aspect of Gastric Ulcer Therapy. *Radiology*, 23:491-498, Oct., 1934.

36. Ettinger, A. and Davis, W. E.: X-ray Diagnosis of Activity and Cure of Duodenal Ulcer. *Am. J. Digest. Dis. & Nutrition*, 1:579-581, Oct., 1934.

27. Rivers, A. B.: Use of Duodenal Extract as an Adjuvant in Treatment of Benign Peptic Lesions; Report of 8 Cases. *Am. J. Digest. Dis. & Nutrition*, 2:189-195, May, 1935.

Only one has had more than one course of larostidin, the dentist previously spoken of, repeating his as a precautionary method. All of them continued their mucin by mouth, in milk, three times a day until three months were up.

What are the results in these seventeen cases of proven ulcer? All are symptom-free; eight have been proven roentgenologically cured, with no evidence of ulcer or cap deformity; seven have shown marked improvement by roentgenologic study, with disappearance of the crater, but one with some pylorospasm, associated with a spastic colitis. All of them are free of hemorrhage, proven by occult blood tests after meat-free diet. Thirteen out of the seventeen have shown gain in weight and all of them have improved rapidly and distinctly enough so that their cooperation has been far greater than in previous times, where the relief of subjective symptoms was very slow. In my own mind such results, even though they bear careful future observation, are worthy of continuance of this two-fold form of therapy. I feel that we are attacking the ulcer from within through chemical and metabolic change, as well as taking care of the mucosal surface, to which we used to limit our treatment.

Finally, let me give you the definite outline of the treatment as given, in numerical order:

1. Activity is regulated by the severity of symptoms, signs, and roentgen findings. A well-defined crater necessitates caution. Naturally, hemorrhage necessitates the usual measures to stop it, and what may be necessary to build up to a decent start. In the ordinary ulcer cases, bed rest is not necessary as long as heavy lifting is prohibited.

2. One ampoule of larostidin is injected intramuscularly, each day for twenty-four consecutive days, when it is discontinued.

3. The patient is started upon gastric mucin mixed in milk, as directed, five times a day, coincident with the start of larostidin therapy. This is reduced to three times a day after six weeks. These feedings are spread out from early morning to the last feeding at night.

4. Soft diet is allowed from the start, with all the milk the patient desires between meals. Insistence is made that not more than two hours pass without mucin, food or milk in the stomach. I might mention here that for the first few days mucin is often distasteful or causes increase in epigastric or abdominal pain, even vomiting. It is to be continued in spite of this.

5. The treatment of the patient as a whole, in other words, the usual factors you have always taken into consideration in trying to solve the

mental worries, fears, burdens and so forth that usually accompany a peptic ulcer. Assurance should be made to the patients that with their cooperation and the cessation of abnormal neurogenic factors the ulcer can be cured. Remind them if they do not follow the directions strictly, that 75 per cent of cases of cancer of the stomach show evidence of previous ulcer. This usually instills a desire for cooperation.

6. A three-fold medication in one capsule to quiet their nervous system, relax their spasm, and help normalize their duodenal chemistry. This is a combination of three drugs which I value among the ten most valuable in our medical formulary. The prescription is phenobarbital (luminal) one-eighth of a grain, extract of belladonna one-fourth of a grain, and panteric (pancreatic) substance grains five. This capsule is given three or four times a day, depending upon the patient's tolerance for belladonna. It is invaluable in relaxing pylorospasm, in giving a sense of quietude and gastric comfort.

7. Absolute insistence that patients rest completely at night. They must be told that if they do not rest, their digestive and nervous systems do not rest. Therefore, all patients receive a prescription of some soporific drug which they take at night routinely, until they form the habit of a sound, unbroken sleep. Sometimes this is by mouth, but usually in the form of a rectal suppository, or paraldehyde in oil, drams two to one ounce mineral oil.

8. When a laxative is required, liquid petrolatum or milk of magnesia is recommended; no other cathartic is allowed. Enemas are permissible if desired.

9. It is explained to the patient that probably another fluoroscopic study will be made of the stomach in one month, and again in three months, and again in three months, and later six to nine months, if conditions warrant. Films and the expense attached thereto are rarely necessary in these follow-up studies. A fluoroscopic examination of the stomach with a six hour meal is usually sufficient.

10. Gastric analysis three months after the start of therapy is important, as an excess of acid would naturally influence our drug and dietetic regime.

I spoke of the recent work in the role of the duodenum by Rivers of The Mayo Foundation. He has isolated this protective extract of the duodenum, has found it unusually satisfactory in curing experimental ulcers in animals, and since October, 1934, has treated about seventy ulcer patients with this extract of duodenal mucosa. Within a few months this "secretin" will be available.

PROGNOSIS IN CHRONIC ARTHRITIS*

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In dealing with such a large subject, I wish first very clearly to limit the term, chronic arthritis, to those conditions with either articular or periarticular pain or with decreased joint function, or both. I would further limit the term to those cases in which the disease has been present for at least three months and in which supuration is absent.

Second, I wish to define what I mean by prognosis. In dealing with arthritis, there are three aims to be kept in mind. The first of these is the arrest or cure of the actual disease present. The second is the relief of pain which is the usual cause bringing the patient to the doctor. The third is a consideration of the restoration of the function of the diseased joints. In regard to functional rehabilitation, one must, of course, take into consideration the actual bony changes which are present in the joint at the time the patient first consults him.

Several times since I have submitted this topic to the program committee, I have wished I had changed it to "factors which do not influence the prognosis in chronic arthritis," but inasmuch as I have decided to give the positive points in prognosis, I will merely rapidly state the factors which in my experience have not worked out to be prognostically important. The first of these, the age of the patient, I originally thought was significant. More experience has demonstrated the frequent occurrence of remarkable results at all ages, as well as a few dismal failures. One would expect the duration of the disease to make a great difference in the prognosis, but, ruling out cases of less than three months' duration, I have in repeated statistical attempts been unable to show any significant difference in end-results between cases of long or short duration. It is perfectly true that there is a tendency for the patient of advanced years and long disease duration to take somewhat longer to obtain the same results that are secured more quickly in youthful subjects.

The severity of the disease is no indication as to the outcome, as is demonstrated by the frequent curing of patients who were using crutches when first seen, and likewise the occasional occurrence of no relief in cases of mild severity. The activity of a disease is not important prognostically. After a case has been active for over three months, it ap-

parently is as difficult to stop the slow insidious process as the rapidly fulminating one. One would naturally expect that, when the case is limited to one or two joints, the results would be much better. Unfortunately, my experience and data show that this factor is not important. Good results are secured in both monoarticular disease and in the most extensive cases of arthritis. Likewise, failures may occur with any degree of extension.

I have tried to find some laboratory test which would enable me to tell the patient how long he would be sick and how much better he could expect to get. So far, I have found no test which is satisfactory. I have recently reviewed the results of the sedimentation tests in 500 consecutive cases. Correlations done between degree of clinical improvement and improvement in the sedimentation test show practically a zero correlation. I have had cases with remarkably rapid sedimentation tests, in which both the patient and the test improved very speedily. I have had cases with normal, who upon improvement show an abnormal sedimentation.

Of all laboratory proceedings, that of greatest value is the roentgen ray. Its use in arthritis is not in diagnosis but in prognosis. Diagnostically roentgenography should be used to exclude diseases other than arthritis rather than to make the diagnosis of arthritis. This is especially true in the spine. The significance of spurring of the vertebral column is probably a much more reliable gauge of an individual's age and traumatic history than of the presence or absence of arthritis. The roentgenogram gives a measure, not of the possibility of cure or of relief of pain but of the possibility of restoration of function. Prognostically, more can be told from a positive roentgen film than from a negative one. Some of my worst failures had, at the time of diagnosis and still have, normal roentgen pictures. On the other hand, when the roentgenogram shows decalcification and decrease in joint space, one would expect to give a poor prognosis. It has been my experience that almost always these joints, under proper medical and orthopedic treatment, can be made to recover functionally to a greater degree than the roentgenogram would lead one to believe possible. The roentgenogram, then, shows within limits the amount of function anatomically possible if positive, and if negative is of doubtful value.

Taking up the factors of importance in prognosis, obviously the mental status of the patient must be considered. The person with a will to

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live and the ability to stand pain and follow for long periods of time a systematic and undramatic schedule is obviously much more likely to get favorable results than one who is incapable of either standing pain or submitting to a monotonous schedule.

It is important, likewise, to note the physical build and habitus of the patient. Steindler has called attention to the fact that loose jointed, long boned individuals are more prone to develop early deformities than the tight jointed, short boned individual.

The next factor to consider in prognosis is the presence or absence of complications. Frequently the outcome in arthritis will depend, not so much on the nature and treatment of the arthritis as on the successful treatment of complicating diseases. It should be noted that the presence of diabetes makes the prognosis much poorer. This is especially true when the diabetes is accompanied by obesity, as it usually is in the arthritic. Obesity is probably the commonest complication of arthritis, and a successful arthritic result in any obese patient can only be secured if accompanied by weight reduction. In arthritis of the lower extremities, varicose veins should be looked for and treated. Frequently this alone will give symptomatic cure of an arthritis of the knees. In general, the arthritis may be expected to improve as the complicating disease improves.

No paper on prognosis would be complete without mention of foci. There is no doubt that infection elsewhere in the body is an important factor in originating arthritis, and in certain instances in keeping it active. I am sure, however, that if infections were routinely classified into active or inactive foci, far fewer teeth and tonsils would be needlessly removed. It is obvious that a focus which is not walled off can and probably does give systemic absorption, either of toxins or bacteria. The fact which has been neglected in the evaluating of foci is the consideration of the well walled off quiescent inflammatory masses, as for example, the dental root cyst. Evaluating these walled off areas mechanically, their relative unimportance in the spread of a disease which is active at a distal point is, I believe, obvious. It seems to the author that the matter of the importance of foci is strictly comparable to the known facts concerning tuberculosis. An unwalled off, exudative type of tuberculosis characteristically results in distant active tuberculous lesions; on the other hand, the Gohn tubercle, a walled off, quiescent area of tuberculosis is completely harmless. I feel very strongly that

only unwalled off active foci contribute to the cause or continued activity of arthritis.

Contrary to popular opinion, there is no chronic disease which offers a better prognosis than arthritis. Pemberton¹, in the recent edition of his book, gives a tabulation showing that 80 per cent of both hypertrophic and atrophic arthritics are markedly improved by treatment. Similar figures are reported in a recent publication of the American Society for the Study and Control of Rheumatism.² However, in spite of the fact that 80 per cent of the cases of rheumatism or arthritis will secure satisfactory results, I have experienced considerable difficulty in the past four years in ascertaining in advance whether a particular case would make a satisfactory recovery or would unfortunately fall within the 20 per cent of unsatisfactory results.

In an endeavor to ascertain the natural course of arthritis, I have devoted the last nine months to the treatment of a control series of arthritis. To do this, I have treated 300 consecutive patients with intravenous solutions only. These solutions were prepared for me by the Cutter Laboratory. One was the standard Cutter arthritis vaccine; one was casein solution of the same protein concentration as the protein in the vaccine, and the third solution was physiologic saline. Patients were assigned to these solutions in rotation and I have at the present time records of 100 patients treated with each of the solutions for eight consecutive weeks.

In order to avoid any prejudice the individual identity of the solutions was unknown to me until all the cases had been started and until approximately 75 per cent had finished their eight treatments. Astonishingly enough, in the 100 cases treated with physiologic saline and nothing else, one-third became markedly improved in eight weeks time. I ask you what other chronic disease will show a similar response to mild psychotherapy. I might add that in general the results with vaccine were twice as good as with saline and that casein showed an intermediate position. The full data of this experiment will be reported elsewhere in detail.

Likewise, the classic differentiation of arthritis into hypertrophic or osteoarthritis, and atrophic or rheumatoid arthritis is valuable in helping to determine therapeutic measures, but in the individual case does not differentiate between those respond-

1. Pemberton, R.: *Arthritis and Rheumatoid Conditions, Their Nature and Treatment*. pp. 431-432. Second edition. Lea & Febiger, Philadelphia, 1935.

2. Hench, P. S. et al: *Present Status of Problem of "Rheumatism"; Review of Recent American and English Literature on "Rheumatism" and Arthritis*. *Ann. Int. Med.*, 8:1315, April; 1495, May; 1537, June, 1935.

ing and those failing to respond to these therapeutic measures. While we will grant that hypertrophic arthritis is frequently an inactive disease, there very frequently occur severe disabling arthropathies which can only be classified as hypertrophic arthritis. Similarly, all cases of atrophic or rheumatoid arthritis are not equally severe, and while there are certain cases which are rapidly progressive and deforming, this is the exception rather than the rule.

The importance of recognizing and separating the arthropathies into atrophic and hypertrophic lies in the recognition that the atrophic or rheumatoid type heals by the formation of adhesions between the joint surfaces with resulting stiffness or ankylosis of the joint. The hypertrophic type tends rather to terminate, not in loss of motion but in instability resulting from ligamentous relaxation and improper articular occlusion. Loss of motion in hypertrophic arthritis can only be caused by the mechanical impingement of the opposing irregularities in adjacent bone ends.

In any discussion of prognosis etiology must be mentioned. At the present time it is generally conceded that infection is the chief immediate cause of the atrophic type of arthritis. Various other factors, metabolic and constitutional, may or may not play a part in the individual case. In the hypertrophic arthritis we are dealing with joints that are anatomically worn, which frequently have been injured anatomically by accident, but both wear and trauma may be present without symptoms. It is important to realize that the finding of spurs at the edge of a joint does not explain pain in that joint. Pain is not seen by roentgen rays and the roentgenogram should be used diagnostically to rule out other disease rather than to rule in arthritis. I believe the symptoms which occur in joints with degenerative changes are probably largely the result of systemic infection with trauma frequently playing the part of localizing agent.

There is only one other general factor to take into consideration in prognosis and that is the factor of trauma. In certain types to be described later, recurring trauma is the chief factor keeping the arthritis active. Prognosis in these cases depends upon the possibility of removing the trauma, whatsoever its nature may be.

The foregoing are general factors in prognosis and usually do not help one in the individual case. I have found it to be of great value further to subdivide the atrophic and hypertrophic groups into several subheads, in which the prognosis is more nearly uniform. In other words, if a case can be

made to fit into one of these subgroups, the prognosis which I have learned by experience to expect in this subgroup will in all likelihood be applicable to the individual case. This I have found of great practical value when called upon to give the patient an opinion both as to the end-result to be expected and as to the time and multiplicity of therapeutic measures needed to attain the result.

The most definite of the subgroups is the so-called poker spine. In this condition there exists a calcification of the perispinal ligaments with the ultimate conversion of the spine into a rigid immovable bony column. Frequently the hips are also involved and more rarely the shoulders. This condition is fortunately quite rare, and I have at the present time been unable to convince myself that any type of treatment has given more than palliative results. The most that can be expected in these cases is the prevention of deformities by suitable braces and casts. In the two cases of this type which I have followed for over three years, one has gradually developed pain and ankylosis of one hip, while the other has recently complained of pain in a hip joint. Both have been materially relieved of spinal pain by the use of casts and braces and existing deformities have been reduced. The anemia and poor nutrition of both has markedly improved, but the disease is not quiescent; in fact, it appears to be slowly progressing.

Comparable to these late cases of ankylosing spinal arthritis, there occurs a group of young males complaining of chronic stiffness and pain, usually in the cervical or upper thoracic spine. These patients frequently are in the best of general health. General examinations, laboratory and roentgen studies are all negative. In this group I have been unable to find any measure which has resulted in permanent relief, and I feel that eventually they will develop spinal ankylosis. Fortunately, these two groups, early and late poker spines, constitute a scant one per cent of all arthritic cases.

A very striking form of atrophic arthritis occurs either in women of any age or in elderly males. It attacks symmetrical joints of all four extremities, has usually a comparatively rapid onset, marked muscular atrophy, profound malaise, anemia and general debility. Except for muscular weakness of the spine resulting in a stooped posture, the symptoms of pain, swelling and stiffness are limited to the feet, ankles, knees, fingers, wrists and elbows. This group runs a protracted course, but one may safely assure the patient that, with (or without) proper medication and with the pre-

vention of deformities, the end-result will be most pleasing. The disease usually runs a course of from one to four years. But in spite of gross decalcification and decreased joint space, I have yet to see ankylosis develop after treatment was instituted.

The next subdivision, classic atrophic arthritis, is a polyarticular asymmetrical disease which affects adults usually under fifty and tends to result in rapid ankylosis of the affected joints. As you well know, usually this disease has no abrupt onset, but develops in periods of two or four months. In this class of cases, it has been my experience that favorable results are distinctly difficult to obtain. Approximately 50 per cent of these patients can be rehabilitated, but to secure this necessitates careful and prolonged work on the part of both patient and doctor, including a careful evaluation and use of all known therapeutic agents.

A very common form of atrophic arthritis is that which follows acute infection, usually of the throat, occasionally in the teeth or genitourinary tract. This I have labeled postinfectious atrophic arthritis and it is in this group of patients that the most striking therapeutic results are obtained, either from treatment with salt, the removal of foci or from more general measures. In this group, after symptomatic cure, I believe that the removal of quiescent foci is indicated from the standpoint of prevention of recurrences.

The sixth and last group of atrophic arthritis is that of bursitis of the shoulder. Of all the conditions which affect the joints, this is perhaps the most difficult of exact diagnosis. The question of whether one is dealing with an arthritis, a bursitis, a tendon injury or any combination of the three is most difficult to answer. When our diagnostic acumen is such that proper evaluation of these factors can be made, our results will materially improve. From a clinical standpoint it has been my experience that these cases are either unusually satisfactory or unusually stubborn. There exists no middle group in which results are fair. Either one secures complete cure or almost no improvement.

In dealing with hypertrophic arthritis we must always take into consideration the amount of structural damage which the joint has undergone. The first subdivision of this group which I wish to mention is that of a menopausal type. This occurs in women between forty and sixty years of age who are always overweight and who complain largely of back and knee pain. In addition to the back-knee-obesity triad, there may be other minor and atypical symptoms. This group responds very satisfactorily,

provided weight reduction can be secured.

Somewhat related to the menopausal type is the group of sacroiliac disorders. As you know, this occurs in both sexes, is frequently activated by minor inconsequential trauma, and tends to be characterized not only by local pain but by radiation down one or both sciatic nerves. In my experience, if the factor of constantly recurring trauma can be eliminated in these cases, they are almost uniformly cured. I feel that in this group it is wise, after the patient has become symptom-free, to remove encapsulated but easily accessible foci.

Another large subdivision of hypertrophic arthropathies is characterized by tenderness and deformity involving either the cervical, thoracic or lumbar spine. In this group, in addition to the local tenderness and deformities, we have characteristically the pain radiating along the course of the spinal nerves. This group includes most of the cases of brachial neuritis. It has been my experience that results are almost uniformly excellent.

An interesting group artificially separated from the preceding one is that of injury to the nucleus pulposus. In practically all my cases the injury was a matter of a decade or more prior to present treatment, and I have found that the results are uniformly good.

In sharp contrast to this, we have a group of joints in which the roentgenogram shows degenerative changes and which gives as the exciting factor in their history more or less severe trauma. There is no doubt that trauma with its subsequent disarrangement of blood supply and weight-bearing lines can give rise to the degenerative changes which characterize hypertrophic arthritis in the roentgenogram. While I believe that in most of these cases there is a systemic infection operating to account for the pain, my results with this type of case have been poor. As a partial explanation of this, I believe that frequently the desire for compensation precludes recovery.

Another subdivision I have labeled classic hypertrophic arthritis. It constitutes that group of patients with multiarticular degenerative changes and symptoms. This is one of the types of case that requires the greatest skill and patience. As proof of this, in my experiment with unknown solutions 40 per cent of these cases made satisfactory progress on salt solution, with vaccine or casein slightly over 50 per cent, while in an uncontrolled group, in which vaccine, medication and orthopedic aids were used, 80 per cent showed satisfactory response.

A somewhat similar group I have labeled the vis-

ceroptotic group. Here we have multiarticular degenerative changes, but in contrast to the broad build of the usual hypertrophic patient, we have a thin, narrow individual, whose abdominal organs are practically pelvic in location and who frequently is subject to recurring acute infection. In these patients the removal of foci and the general improvement of nutrition are very important. One might say that, if these patients can be fattened, they can be markedly improved. Unless one can make them gain weight therapy is of little avail.

In regard to the group of degenerative hips, found in elderly individuals, the so-called morbus coxae senilis, I have only one point to make, that the function and pain occasionally improve much more than one could expect from the roentgenograms. My series show that approximately 40 per cent are materially aided in rehabilitation.

Finally, we have the group with nodular deformities of the terminal phalanges of the finger, the so-called Heberden's nodes. As a distinct group, without disease elsewhere, this is relatively rare. As such, however, I frequently find general constitutional treatment of great value in reducing the pain and also, surprisingly enough, the deformity.

In summary, I might say that poker spines, classic atrophic arthritis, bursitis of the shoulder and posttraumatic arthritis necessitate closest attention to detail to secure favorable results. In symmetrical atrophic and postinfectious arthritis and in all hypertrophic arthritis except that following severe trauma, the results should be very good without more than ordinary attention to the details of treatment.

THROMBOANGIITIS OBLITERANS*

(BUERGER'S DISEASE)

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REPORT OF A TYPICAL CASE

A Gentile, a salesman, aged thirty-five, came to The Mayo Clinic because of a nonhealing ulcer of the first toe of the right foot. He had smoked cigarets for the past ten years, and had averaged ten to fifteen a day. The onset of trouble had been noted three years previously, when the left foot had become colder than the right. This had been more noticeable on colder days. Shortly after this he had found that after he had walked for a distance of five to six blocks he had noticed a painful fatigue in the arch of the left foot. He had found that after he had rested a few moments he had been able to resume and carry out the same amount of exercise. Arch supports had been prescribed without relief. He had tried various alterations in his shoes without relief. Diagnoses had been made of arthritis, "rheumatism," "sprain" and "fallen arches."

One year later, for several days, his walking distance had been reduced to about two blocks, because of painful

cramp in the left calf which was described as a painful fatigue that had appeared after a fixed amount of exercise and had disappeared promptly with rest. Repetition of the pain could be induced at will by exercise. He also had noticed that the left foot, when in the dependent position, had been dusky red in color. Red, raised, painful nodules had developed in the superficial veins of the opposite leg. These had persisted two or three weeks and then had disappeared. In one of these bouts, the superficial vein had been inflamed for a distance of about two inches. His occupation had been seriously interfered with and his activities had been limited to a circumscribed amount of walking.

One year ago a similar distress after walking had appeared in the calf of the right leg. The right foot had been colder than the left and in addition to his claudication or exercise pain, tingling and numbness had developed in the right foot and there had been mild paroxysms of pain which had extended down the right leg, and which had been more marked during the night. Several times the toes had blanched. The nail of the right first toe had become tender. He had attempted to relieve this by cutting deeply into the margin of the nail. Infection and ulceration had developed; pain had become continuous and persistent in the ulcerated region, and for the past three months his condition had grown progressively worse and had resulted in total disability. Lack of sleep, except with use of opiates, excessive use of cigarets, increasing nervousness and persistent pain completed the picture of this unfortunate man.

On examination, both feet, when dependent, were redder than normal, the so-called reactionary rubor. When both feet were elevated, they blanched to an almost complete pallor, and when they were dropped slowly to the dependent position, at least one minute elapsed before the veins became filled and their usual color returned. Palpation revealed that the feet were cold; the right foot was colder than the left. The arteries of both legs were closed in the region of the middle portion of the femoral artery and all pulsations were absent below this level. In addition, the left ulnar artery was occluded, and revealed a positive Allen's test. There was a small ulcer at the mark of the nail of the first toe on the right foot. The toe was swollen, red and extremely painful. The skin of the right foot was hyperesthetic. The reflexes were present. There was no active superficial phlebitis present.

COMMENT

This case represents a typical example of the disease, thromboangiitis obliterans. The course and progression of the disease are vividly brought out by the clinical history of this man. Three years previously persistent coldness, which developed in the left foot, indicated some interference with the supply of arterial blood. In addition, the onset of claudication in the arch of the foot indicated that there was closure of the main artery in the lower part of the leg, probably at the bifurcation of the popliteal artery. With the appearance of claudication in the muscles of the calf, the occlusive process had extended proximally to the middle portion of the femoral artery. If claudication had appeared in the muscles of the thigh, the femoral or iliac artery necessarily would have been occluded. The thrombosis process then became stationary in the left leg, since the site of the claudication and the tolerance to exercise remained unchanged.

The appearance of the inflammatory lesion in

* From Division of Medicine, The Mayo Clinic.



Fig. 1. Nodular and linear superficial phlebitis in thromboangiitis obliterans; trophic changes in the nails and reactionary rubor of the toes may be seen.

the superficial veins of the right leg visualizes the pathologic process (fig. 1). Following the onset of phlebitis, claudication appeared in the calf of this leg; this indicated a closure of the major artery at about this level. The sequence of events showed that the disease was not diagnosed at this stage, and that proper protective measures were not instituted. The onset of ulcer or gangrene, which usually follows trauma of some type, therefore was facilitated. In this instance the improper cutting of the nail and tearing of the contiguous skin allowed infection to develop. The development of numbness and tingling in the foot and the appearance of paroxysmal pain at night along the course of the nerves are indicative of ischemic neuritis. These symptoms usually follow rather sudden closure of a large artery, usually some portion of the femoral. In addition to the involvement of the feet, the left ulnar artery was occluded. This, however, had occurred without symptoms which is so frequently the case. It may be assumed that one or more arteries of both arms eventually will become involved and occluded.

GENERAL DISCUSSION OF THROMBOANGIITIS OBLITERANS

The pathologic process in thromboangiitis obliterans has been carefully described by Buerger,¹ Todyo,² Brown,³ Allen and Mahorner,⁴ and others. There is an inflammatory arteritis, which at times is acute but more often is subacute. The process in the earliest lesion is probably an active proliferation of the intima. Following this, there is a thrombosis which contains leucocytes and lymphocytes (fig. 2). All coats of the vessels are involved in

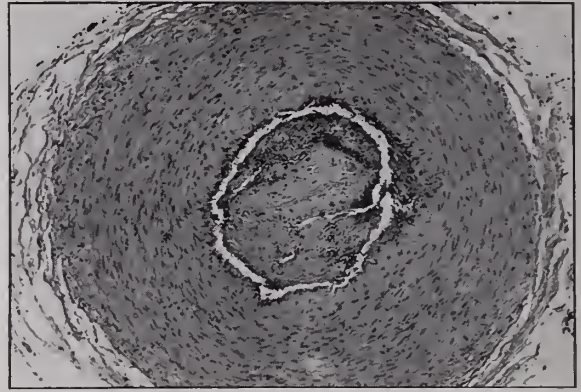


Fig. 2. Section of the small artery in thromboangiitis obliterans, showing the acute lesion. There is infiltration of the red occluding thrombus and of the wall of the artery with lymphocytes and leucocytes (x75).

the inflammatory arteritis. The process is the same in the veins as it is in the arteries. The arteries, veins and nerves become enmeshed in an inflammatory fibrous mass. The thrombus undergoes organization and canalization, and collateral circulation develops rapidly. The histologic evidence of inflammation gradually disappears. The vessels may be involved in segments which are one inch or more, but usually two to three inches, in length. After variable periods of time, other segmental arteritis or phlebitis occurs. The disease has a predilection for the arteries and veins of the extremities. Rarely the coronary vessels and other more proximal vessels may become involved.

ETIOLOGY

The etiology of the disease is unknown. There is an increased predilection of the disease for the Jewish race, though this varies greatly with the clientele of the physician. As far as is known, all races may have the disease, though authentic reports of its occurrence among pure Negroes are not available. There is a strange predilection of the disease for males, 98 per cent of these patients being males. There has been no adequate explanation of this sexual difference.

There are two theories as to the direct etiology: First, is the infectious-toxic theory. This is based on the conception that the lesion is a low grade infection, or the effect of the toxins of some infection. Against this idea is the fact that no specific organism has been obtained. The pathologic lesions have been reproduced by Buerger in man by implantation of the resected, inflamed, superficial veins. Horton and Dorsey⁵ have also reproduced lesions very similar to those found in thromboangiitis obliterans by implantation of resected segments of superficial phlebitis in the femoral veins

1. Buerger, L.: Thromboangiitis Obliterans; Study of the Vascular Lesions Leading to Presenile Spontaneous Gangrene. *Am. J. M. Sc.*, 136:567-580, Oct., 1908.

2. Todyo, T.: Beitrag zur Pathogenese der sogenannten spontanen Gangrän. *Arch. f. klin. Chir.*, 97:640-685, March 14, 1912.

3. Brown, G. E.: Diseases of Blood Vessels. In Musser, J. H.: *Internal Medicine: Its Theory and Practice in Contributions by American Authors*. Lea & Febiger, Philadelphia, 1934, Ed. 2, pp. 455-502.

4. Brown, G. E., Allen, E. V. and Mahorner, H. R.: *Thromboangiitis Obliterans: Clinical, Physiologic and Pathologic Studies*. W. B. Saunders Co., Philadelphia, 1928, pp. 40-72.

5. Horton, B. T. and Dorsey, A. H. E.: Experimental Thromboangiitis Obliterans; Bacteriologic and Pathologic Studies. *Arch. Path.*, 13-910-925, June, 1932.

of rabbits. The evidence, however, for the infectious-toxic theory is not entirely convincing. Possibly the disease may be caused by some unknown virus.

The second theory is that the disease is caused by the excessive use of tobacco. This view is held particularly by New York clinicians.^{6,7} The main evidence for this conception is that all their patients are excessive users of cigars, and cigaret smoking induces fairly constant vasoconstrictor effects, as measured by the fall in surface temperatures of the digits. Patients who have thromboangiitis obliterans are hypersensitive to extracts of tobacco, as determined by the reaction of the skin to them.⁸ This work needs confirmation. Against the tobacco etiology is the important fact that characteristic and proved thromboangiitis has been observed to affect patients who never have used tobacco in any form.

CRITERIA FOR DIAGNOSIS

There are three usual types of occlusive arterial disease of the extremities. The first type is arteriosclerosis obliterans, the so-called "senile arteritis," "senile gangrene" or "diabetic gangrene." This disease affects subjects who usually are more than fifty years of age. Symptoms resemble closely those found in thromboangiitis obliterans. There is an absence of superficial phlebitis; there rarely is occlusion of the arteries of the arms, and there is other evidence of senile changes in the skin, hair and other tissues. Usually there are demonstrable grades of calcification of the arteries, as demonstrated by roentgenologic examination. Diabetes is present in about 25 per cent of the cases in this group. There may be some difficulty in differentiating thromboangiitis obliterans and arteriosclerosis obliterans in cases in which the patients are between forty-five and fifty-five years of age. The sexual differences are not as marked in arteriosclerosis obliterans as they are in thromboangiitis obliterans. Eighty-four per cent of patients who have arteriosclerosis obliterans are males and 16 per cent are females, according to the statistics of The Mayo Clinic.

The second important type of occlusive vascular disease is thromboangiitis obliterans or Buerger's disease. The third type is the occlusion of the arteries as the result of embolism which is secondary to cardiac disease. The diagnosis of this type is usually simple in cases in which the patients are

young individuals with clinical signs of cardiac disease. It is more difficult in cases in which the patients are old individuals who have generalized arteriosclerosis and fibrillating hearts. The basic signs and symptoms are the same in the other diseases that cause obstruction of major arteries. There should be no difficulty in differentiating organic occlusive disease of the arteries and vasomotor disturbances.

The vasomotor disorders of the constrictor type, such as Raynaud's disease, are much more frequent among females than among males; 90 per cent of patients who have these disorders are females. Peripheral arteries show pulsations. The trophic lesions are much less in evidence and involve only the skin, unless complicated by scleroderma. Cyanosis and pallor of the digits, which are brought on by emotion or exposure to cold, are the usual symptoms of this type of disorder. Severe pain and claudication are never seen. Some confusion may arise in the cases in which there is early organic disease of the arteries, and in which the earliest symptoms may be vasospastic in origin and exhibit changes in the color of digits. This confusion erroneously gives rise to the diagnosis of Raynaud's disease in the male sex; subsequently definite evidence of one of the occlusive arterial diseases is obvious.

METHODS OF DIAGNOSIS

Many mechanical and physical methods have been evolved to aid in the diagnosis of vascular diseases. The measurements of the surface temperatures may be mentioned. The use of the oscillogram, calorimetry, and arteriography for visualization of the peripheral vessels are useful in some cases. I may emphasize that simple clinical procedures are of greater usefulness than any mechanical device. Simple palpation of the dorsalis pedis, posterior tibial, popliteal and femoral arteries in the leg, and of the ulnar, radial and brachial arteries in the arm should be sedulously carried out in all cases in which patients have symptoms in the extremities. A little practice will enable one to determine with a high degree of accuracy the presence or absence of obstructive lesions of the arteries which usually are palpable. In addition to the palpable evidence of arterial involvement, are the visual manifestations of arterial insufficiency, the blanching of the extremities when elevated and the increased rubor when they are dependent. Sharp differences in temperature of the digits or in the two extremities and the presence or absence of phlebitis may be determined by simple palpation or inspection. I would emphasize the great importance of the

6. Samuels, S. S. and Feinberg, S. C.: Heart in Thromboangiitis Obliterans. *Am. Heart J.*, 6:255-263, Dec., 1930.

7. Silbert, S.: Treatment of Thromboangiitis Obliterans by Intravenous Injection of Hypertonic Salt Solution; Preliminary Report. *J. A. M. A.*, 86:1759-1761, June 5, 1926.

8. Barker, N. W.: Relation of Tobacco to Circulatory Disturbances of Lower Extremities. *Minn. Med.*, 16:341-342, May, 1933.

chronological development of symptoms in diseases of the peripheral arteries. The "exercise distress," so-called claudication, is one of the most pathognomonic symptoms in medicine. Symptoms of peripheral neuritis should make one inspect and examine the condition of the peripheral arteries.

TREATMENT

It is outside of the confines of this paper to attempt to enumerate the usual therapeutic measures. However, I would again point out the great importance of making a diagnosis before ulcer or gangrene has occurred. If the patient becomes aware of the nature of his disease and learns to treat his extremities with care and avoid unnecessary wear and tear, the percentage of trophic lesions, gangrene and amputations would be sharply reduced. Tobacco should be interdicted in all cases. The danger of trichophytosis (ringworm or athlete's foot) should be recognized, and a modified treatment, in view of the poorly vascularized skin, should be carried out consistently. Usual germicidal agents may exert a destructive action on skin which has a deficient



Fig. 3. Massive gangrene from application of antiseptic agent (methiolate), gangrene medicamentosa in thromboangiitis obliterans.

circulation (fig. 3). The extremities should be kept warm at all times by the use of proper covering.

Measures to increase the circulation include postural exercises, as outlined by Buerger, contrast baths and the induction of fever by foreign protein. The intravenous injection of hypertonic saline solution, as advocated by Silbert, has been successful in his hands. If gangrene, ulcer or secondary infection exist, soaking the extremity in warm physiologic saline solution, or in a warm solution of boric acid, should be carried out intermittently during the day; this relieves the pain by establishing drainage, and, as a result, ulcers show a tendency to heal. Complete rest of the extremity in the pres-

ence of trophic lesions is probably the most important single measure in treatment. Section of the sensory branches of the regional peripheral nerve may be of great value in the control of localized pain. For claudication, the use of the newer tissue extracts may increase the range of activity. However, it is best not to encourage the overuse of the feet. The treatment of the recurring bouts of superficial phlebitis is not satisfactory. When the veins are involved above the ankle, resection of the involved vein may be carried out without fear of nonhealing.

Suitable doses of roentgen rays may relieve the pain caused by the associated cellulitis. The rest pains, which usually are paroxysmal at night and so typical of ischemic neuritis, constitute a problem in therapy; administration of alcohol by mouth and fairly large doses of aspirin will give symptomatic relief. The pain in this form of neuritis usually subsides in three to six months. Sympathetic ganglionectomy has great usefulness as a protective measure in that it insures maximal vasodilation. It never should be carried out for the relief of pain or in order to heal ulcers. This is done by medical treatment. If study of a patient indicates a fairly high degree of spasm, as determined by appropriate tests, and if there are no contraindications to operation, sympathetic ganglionectomy in my experience offers a 90 per cent insurance against the subsequent development of ulcer or gangrene.⁹ It does not stop the progress of the disease, but protects the extremities during relapse. This operation is especially important in cases in which patients need rapid restoration to employment and when their occupation entails heavy wear and tear on the hands or feet.

CONCLUSION

Thromboangiitis obliterans is an important disease. It affects men in the active, useful period of their lives. Failure to diagnose this condition and failure to institute conservative protective measures may result in the loss of one or more extremities. The diagnosis and appreciation of the sequelae of obstructive diseases of the arteries of the extremities are as crucial as is the diagnosis of appendicitis before the development of an abscess. Simple clinical procedures suffice for the diagnosis of diseases of the peripheral arteries. More accurate procedures are useful in determining the effects of therapy and in studying the progression or regression of the disease.

9. Adson, A. W. and Brown, G. E.: Thromboangiitis Obliterans; Results of Sympathectomy. *J. A. M. A.*, 99: 529-534, Aug. 13, 1932.

PREVENTION OF LATE DEFORMITY IN COLLES FRACTURE *

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The cosmetic and functional results obtained in the treatment of compression fractures of the lower end of the radius, with or without fracture of the tip of the ulna, leave some room for improvement. Every surgeon who treats any number of these fractures has noticed a gradual deformity proceeding under his treatment. A satisfactory reduction may have been obtained with the two articular angles restored to normal, and yet, at the end of six weeks, a shortening of the radius will be seen. This shortening is seen more often in elderly people, particularly women, than in those with more robust bones.

The injury causes a collapse of the framework of the bone on its posterior and lateral aspects for a distance of at least half an inch. Following reduction and as soon as the anesthesia wears off, muscle spasm begins to exert a steady pull in the long axis of the forearm. The unbroken ulna remains firm, but the radius shortens under the stress. By the time that union is firm the hand will be found deviated to the radial side and the lower end of the ulna protruding.

After suffering humiliating experiences I have now adopted a simple method of splinting which has in my own hands given improved end results. Adhesive traction applied to the hand or fingers is usually difficult to maintain. The shape of the fingers and the threat to the circulation by circular bands makes its use ineffective. But if wrapped about the area of the first metacarpal it is harmless, comfortable and effective.

Böhler¹ and King² have described methods of obtaining traction in compound and comminuted fractures about the wrist joint. They have used piano wires through the olecranon and metacarpals. I have used the double wire method with satisfaction. Using the method described below in over ten instances, I feel that the tendency for late deformity to develop in the Colles type of fracture can be prevented.

METHOD

Under anesthesia the distal fragment or fragments are made freely movable and the fracture is

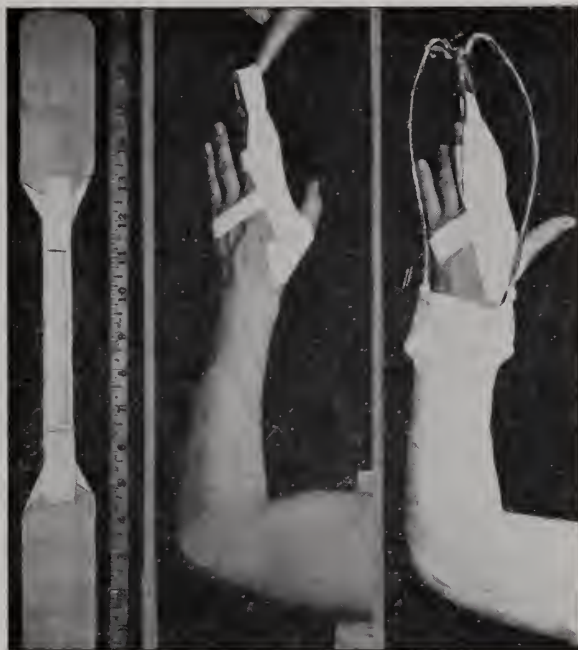


Fig. 1

Fig. 2

Fig. 3

Fig. 1. Double adhesive band, 18 inches long.

Fig. 2. Adhesive band wrapped around the base of the thumb and first metacarpal area after fracture is accurately reduced.

Fig. 3. Plaster of paris cast to include the elbow joint and hold the banjo-type of splint, with elastic traction maintaining tension.

accurately reduced. The skin of the base of the thumb is painted with tincture of benzoin. Double thickness adhesive plaster (fig. 1) is wrapped around the base of the thumb and first metacarpal bone almost to the fracture line; if the ends overlap, a very satisfactory tension may be maintained (fig. 2).

A cast is applied, extending from the midhumeral area to the wrist joint with the elbow flexed and the forearm midway between pronation and supination. The wrist joint is slightly flexed. A banjo type of splint made of duralumin is buried in the plaster cast. A stout rubber band is interposed between the adhesive loop and the metal (fig. 3). This will usually be strong enough to maintain reduction and overcome muscular contractions in the flexors and extensors which cross the fracture line. The equivalent of three to four pounds is usually enough tension. A tongue-like portion of the casing carried forward into the palm of the hand prevents folding up of the hand and increases comfort.

Tension is maintained for at least twenty-one days. By the end of this time the compressed area on the back of the radius has been filled in with organized tissue of sufficient stability to prevent shortening.

A small stainless metal pin passed through the olecranon may be used for counter traction if de-

* Read before Forty-sixth Annual Meeting of Washington State Medical Association, Everett, Wash., Aug. 13-14, 1935.

1. Böhler, L.: Modern Treatment of Accidental Injuries. Practitioner, 127:11-21, July, 1931.

2. King, T.: Treatment of Difficult Colles's Fracture by Skeletal Traction. M. J. Australia, 2:144-146, July 30, 1932.

sired. If the front of the upper arm is padded with a strip of felt and an unpadded cast is well moulded to the lower arm, the pin is not necessary. This method of tension carries the hand toward the ulnar side and seems to maintain the inferior radial ulnar joint in its normal position and prevents contraction of the structures on the radial side of the wrist.

It is fundamental that the fracture be thoroughly reduced before applying this method of treatment. This is not to be regarded as a method of reduction. The treatment successfully immobilizes "the joint above and the joint below" the fracture line. The distal fragment remains under our control and its position is easily checked by fluoroscope or film.

A new cast or splint of the pistol grip type may be used after twenty-one days. The most common errors I have observed in the use of this method are in using single thickness adhesive, and in maintaining too strong or too weak a tension in the rubber band.

SIGNIFICANCE OF PAIN AND VOMITING IN CHOLELITHIASIS.
Robert Zollinger, Boston (*Journal A. M. A.*, Nov. 23, 1935), states that the susceptibility of the gallbladder and extrahepatic ducts to over-distention or inflammation from cholelithiasis makes these structures a common source of referred visceral pain. He has distended the gallbladder in nine women operated for gallbladder disease. His observations indicated that: 1. Mechanical distention of the gallbladder usually gave rise to deep epigastric discomfort, more severe but similar to the attacks of indigestion in gallbladder disease. 2. The discomfort was not referred to the gallbladder region. 3. Distention of the gallbladder did not cause vomiting. 4. It was found impossible to reproduce the usual referred pain in the back, the infrascapular region or the right upper quadrant. 5. Objectively and subjectively the patients had respiratory difficulty when the gallbladder was distended, especially inspiratory difficulty. 6. Distention of the gallbladder, producing contact with the parietal peritoneum, gave localized pain. This was markedly relieved by infiltration of the overlying abdominal wall with procaine hydrochloride. 7. Two patients did not complain of discomfort regardless of the amount of distention of the gallbladder. Mechanical distention of the common duct produced severe epigastric distress. The pain was more severe than that in distention of the gallbladder in the same patient. Distention of the common duct produced vomiting in two of three cases. There was no evidence of referred pain to the right upper quadrant or to the back. Inspiratory distress was present. Contrary to the Mackenzie theory, the author believes that a true visceral pain exists. This was represented in his experiments by the consistent finding of epigastric discomfort similar to the attacks of indigestion noted by the patients previous to operation. The relief obtained by infiltration of the overlying skin with procaine hydrochloride might be interpreted to favor the theory of Mackenzie. Since referred pain could not be reproduced by mechanical distention either in his cases or in those of Oglivie, the author believes that weight is given to the argument that referred pain and tenderness are more likely to result from inflammatory lesions. The common association of cholecystitis with cholelithiasis would adequately account for the frequency of referred pain in this disease. The pathway explaining inspiratory distress is not entirely clear. The absence of vomiting following distention of the gallbladder and the presence of this symptom when the common duct was distended is in accord with the observation on animals. The author has made an effort during the last two years to test the clinical significance of his observations.

GOITER. PRACTICAL POINTS *

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In this paper are presented a series of disconnected observations relating to goiter. Some of these remarks are based on a discussion of goiter recently carried on at the meeting of the American Association for the Study of Goiter, which it was my privilege to attend and address.

In adults with hyperthyroidism, even in very radical operative technic, there is very little likelihood of myxedema developing; temporarily there may be the necessity for thyroid extract, but often this may later be dispensed with. In young children the danger of myxedema is considerably greater, and the operation should not be quite so radical.

In true myxedema it has been noted that the blood cholesterol is markedly elevated, the upper limit of normal being 230 mg. per 100 cc., and in severe cases it is well above this figure. Significant elevation of the blood pressure has been observed in many cases of myxedema. The association of these two conditions would appear to be more than coincidental.

A matter exciting great interest at the recent meeting was the subject of parathyroid tumor. An interesting conception of the etiology was suggested by Wilder¹ which may explain why so many more of these tumors have been found in certain localities. His theory is that deprivation of vitamin D or ultraviolet light calls forth compensatory activity of the parathyroid glands, which may overcompensate and cause a general hyperparathyroidism and in some cases go on to actual tumor formation in the glands which have cells potentially able to produce adenomas.

Wilder could only collect approximately 125 cases of proved parathyroid tumors that have been reported in the world literature. As his criteria for a true case he postulated either the skeletal abnormality of osteitis fibrosa cystica or demonstrable calcium imbalance, tumorous enlargement of the parathyroid glands.

It is interesting that renal stone was a complication of hyperthyroidism in 18 per cent of the cases, so, therefore, in cases of renal stone it is well to think of this condition, for it may call attention to the calcium imbalance before skeletal changes have arisen.

* Read before the Sixty-first Annual Meeting of Oregon State Medical Society, Gearhart, Ore., Sept. 19-21, 1935.

1. Wilder, R. M.: Etiology of Hyperparathyroidism. *Tr. Am. A. Study Goiter*, 1935.

It is generally conceded that multiple myeloma, Paget's disease and various types of arthritis, etc., which were for a time considered as due to parathyroid disturbance, have not been proven by any scientific data to be directly related to parathyroid disease. This point, however, is still a subject of controversy.

An important point is that surgically the parathyroid glands are very difficult to find, and their anatomy is not uniform. The tumors have most often been found near the inferior thyroid vessels and behind the gland, although they have been found elsewhere and even deep in the superior mediastinum.

The subject of the place of iodine in the treatment of goiter is extremely interesting. That iodine is of great value in the preoperative preparation of patients suffering with diffuse hyperthyroidism is definitely proven and has been the greatest single factor in lowering the mortality rate in this group. That in most cases the maximum improvement occurs in about ten days is of great importance in timing a severely toxic patient for surgery.

One of the most difficult problems still remaining unsolved in thyroid surgery is the small group of patients who, after having improved under iodine, gradually slip backwards and, so to speak, become iodine-fast, at least to its value, and become again much greater surgical risks. Two methods have been suggested in preparing such iodine-fast cases for surgery, namely: (1) rest from iodine for about two months, and then resuming iodine just prior to operation; (2) use of roentgen therapy at weekly intervals. Neither of these methods has been entirely satisfactory and further attention is now being focused on this problem.

Thompson,² in a very careful piece of work, has studied the quantitative elements in iodine therapy and has definitely shown that relatively small amounts of Lugol's solution, e.g., 5 mm. daily, gives entirely as much effect as larger or very large doses. It is important to keep patients on small amounts of iodine postoperatively for a month or two. Dinsmore of the Cleveland Clinic uses 5 mm. of Lugol's daily for one month. In the absence of enough iodine there is a deficiency of thyroid secretion, resulting in the formation of a thyrotropic hormone which calls forth a compensatory hypertrophy. If this hypertrophy goes too far, it may cause a recurrence of the goiter.

It has become the practice at The Mayo Clinic as well as with Lahey Clinic and others to give Lugol's solution preoperatively to patients with toxic nodular goiter. Some observers feel that they note just as valuable results in these cases as in the toxic diffuse type. It is my experience that often some value will be observed but not to the extent of that in the diffuse type. Likewise, statistical studies at The Mayo Clinic do not show any drop in the mortality of the toxic nodular group as a result of the use of iodine preoperatively, as is evident in the drop in mortality in the diffuse group. It is felt, however, that enough value is noted in some cases to make its use routine, provided that it is not continued as a means of treatment but only as a preoperative preparation. No harm has been reported from the use of iodine in those cases.

Concerning the value of the basal metabolic rate in the diagnosis of toxic goiter, it is well to bear in mind that the normal rate for some healthy individuals may be as low as minus fifteen per cent, and in such instances a reading of plus ten or fifteen per cent represents considerable elevation of the rate. This point is important in the proper understanding of a small group of goiter patients, as was recently pointed out in a study at The Mayo Clinic.

With reference to the diagnosis, difficulty is often encountered in differentiating hyperthyroidism from early tuberculosis, anxiety tension states and neurocirculatory asthenia. The following points are found helpful in differentiating the thyroid from the functional cases: (1) In contradistinction to the neurotic individual the thyroid patient is self reliant, optimistic, and not inclined to worry. (2) The thyroid patient usually presents warm moist hands in contrast to the cold clammy hands and feet which are characteristic of the neurosis case. (3) Tachycardia, arising from neurocirculatory asthenia, often disappears when the patient is asleep, whereas the accelerated pulse rate due to hyperthyroidism remains relatively unchanged.

In a recent survey of a group of cases it was noted that the nodular toxic group tended toward a steadily progressive course. As Plummer has previously pointed out, the tumor is often present for fifteen to twenty years before symptoms arise, and once toxic symptoms appear the course is steadily downward. The impression gained from these observations was that in this group of patients toxicity often developed insidiously, and by the time the goiter became obviously toxic, important cardiovascular changes were evident.

2. Thompson, W. O.: Quantitative Observations on Effect of Iodine in Exophthalmic Goiter in Chicago. *Tr. Am. A. Study Goiter*, 1935.

Recurrence of goiter is observed most often in the diffuse toxic types of thyroid. Its prevention may be accomplished by doing adequate and sufficiently radical operation. In particular it is suggested that the superior thyroid vessels themselves be ligated and not their poles. Then the gland should be well rotated as otherwise a large finger-like area of gland going toward or around the trachea may be left. It is recommended that the lateral capsule be caught with the forceps well up and the gland itself sort of enucleated; also the pyramidal lobe must be removed as it may hypertrophy. The younger the group of cases the more recurrences, however, will be noted in the group. Certain investigators have reported that most cases of recurrence have resulted almost immediately, while others have noted a symptom-free interval of varying time, being as long as ten years.

Thyroid malignancy is a vexing subject for the surgeon. If the disease is sufficiently evident to be recognized prior to operation, it carries with it a very grave prognosis. Rapid growth in a thyroid or attachment to the skin or underlying structures would be the signs which would make this diagnosis evident. About 3 to 5 per cent of goiters are malignant and practically all of them start in previously existing adenomas, usually fetal, therefore, a reason in itself for removal of adenomas. Removal and radiation are to be recommended for the earlier cases of malignancy and radiation alone for those that are already fixed to surrounding structures.

Reidel's struma is sometimes confused with malignancy, due to its extreme woody-like hardness. It has been variously said to be due to a lymphoid hyperplasia in the glands or a chronic thyroiditis. Microscopically it is readily differentiated from malignancy, and in the gross at operation it may be noted that the gland is vascular and yellowish in color rather than beefy in appearance.

Exophthalmos has always been an interesting topic. Dinsmore of the Cleveland Clinic has noted that it is most likely to disappear in cases which have been operated on early in this disease, especially if the patients are young. Some cases, however, go on to increasing exophthalmos, even if hyperthyroidism is controlled and occasionally even in the presence of myxedema. For this malignant type of exophthalmos Naffziger³ has recommended and carried out successfully the intracranial decompression of the roof of the orbit, by which he there-

by prevents the continued extrusion of the eyes and resulting loss of vision, which is due to the intraorbital pressure caused by the swollen and hypertrophied ocular muscles.

Swift⁴ has further suggested that instead of an intracranial operation the same results may be secured by an incision lateral to the eye, in which the orbit is decompressed extracranially, without such an involved technical procedure. He reports two successful cases.

In conclusion, I should like to call attention to the existence of many typical cases of goiter which may be easily overlooked. These may be of the following types: (1) those associated with unusual pressure symptoms, (2) those associated with other obvious disease states, (3) those cases in which the disease is insidious or apathetic and may show very little activation or stimulation. Not to overlook these cases it is necessary to become goiter-conscious.

4. Swift, G. W.: Malignant Exophthalmos and Operative Approach. *West. J. Surg.*, 43:119-126, March, 1935.

DIURETIC ACTION OF POTASSIUM SALTS. The biochemical studies of Norman M. Keith and Melvin W. Binger, Rochester, Minn. (*Journal A. M. A.*, Nov. 16, 1935), indicate that potassium is readily absorbed from the intestine, disappears quickly into the tissues, and can be rapidly excreted by the kidney. The small amount in the blood serum, even after ingestion of a considerable quantity, raises the question as to its manner of storage and subsequent liberation for excretion. The two chief storehouses of potassium are the erythrocytes of the blood stream and the cells of voluntary muscle. In health, any excess seems to be quickly removed from the blood serum and is then gradually excreted by the kidneys. Following depletion of potassium due to starvation and that seen in cardiac edema, there is retention with a refilling of the muscle storehouse. The efficiency with which the kidney concentrates potassium, at least fifty times, readily explains the rapid elimination of a great excess taken in the diet by eaters of potatoes, for example. The ability of the kidney to excrete potassium may be maintained late in chronic nephritis in a similar way to its ability to eliminate creatinine. The much greater concentration by the kidneys of potassium than sodium may possibly be explained by less reabsorption of the former in the renal tubules. The authors' results together with those of Miller again emphasize the well known fact that potassium and sodium have certain independent biologic functions, as, for instance, the high concentration of sodium in blood serum and interstitial fluid in contrast to the small content of potassium, the high concentration of potassium in the erythrocytes with little or no sodium present, and also the initial retention of water with the ingestion of sodium salts in contrast to loss of water after taking potassium salts. The present study shows that five potassium salts cause diuresis. The cation potassium is readily excreted in each instance by the kidney; it also brings about a definite shift of the acid-base equilibrium in the urine toward the alkaline side. These two facts offer a possible explanation for its diuretic action. Of the five salts the nitrate produced the most marked effect, which emphasizes the importance of the anion as well as the cation in considering the diuretic action of a given salt. The authors state that their clinical results with potassium salts confirm the results of the therapeutists of the last eighty years. They prefer potassium nitrate because, after its use, diuresis frequently occurs.

3. Naffziger, H. C. and Jones, O. W.: Surgical Treatment of Progressive Exophthalmos Following Thyroidectomy. *J. A. M. A.*, 99:638-642, Aug. 20, 1932.

NORTHWEST MEDICINE

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of the Pacific Northwest

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DECEMBER, 1935

EDITORIAL

BENEFITS OF AMERICAN MEDICAL ASSOCIATION

Comprising the largest number of physicians in any medical organization in the world, the American Medical Association extends benefits and protection to the physicians of the United States of which many of them are unconscious or unobservant. Anyone visiting Chicago should go to the association building, where he will have explained to him the manifold activities of this institution and he can obtain an idea of the tremendous complexity of the activities of which he is the beneficiary. One may not be aware of the fact that every physician of this country is listed in the files, with a record of his activities since the day of graduation. In examining his own file he may be much surprised to find data about himself either favorable or unfavorable according to enterprises in which he has been engaged and which have been subjected to publicity. If information is desired concerning any practitioner in the land, inquiry at association headquarters will answer queries concerning such an individual that are unobtainable elsewhere.

Some physicians appear to take special delight in casting slurs and innuendos against the Association concerning its management, charging favoritism, inefficiency, graft and endless other irregularities. Wherever attempts have been made to verify these charges they have been proved groundless. On numerous occasions it has been demonstrated that no organization exists whose purposes and execution are exerted more unstintedly and unselfishly for the benefit of its members and promotion of the interests in which they are engaged. On occasions, when legal procedures, commonly charging libel or persecution on part of the Association, have been instituted against it, they have invariably failed in their purposes and the Association has emerged victorious.

There have been two chief sources of hostility against the Association. One prolific cause of discontent has been the disappointment of authors, whose productions have been declined for publication. If one considers the hundreds of papers con-

tinually submitted, he would realize that it is physically impossible to publish more than a small percentage of them. Often, however, a disappointed author considers that he has been subjected to a personal grievance and frequently such an offended individual has carried on a personal campaign of vilification against the editor of the journal and the organization. The most subtle and continual attacks come from producers of products, whose deceptions and frauds have been exposed through the Council on Pharmacy and Chemistry. One of the most persistent and vicious of these has been carried on for a number of years by the purveyor of a certain form of ergot, whose scandalous arraignments have obtained the open or concealed support of certain individuals and interests, thus enabling the campaign of vilification to continue with increasing vigor and venom. One hears the claim made from time to time by individuals whose products have been rejected that, if a sufficiency of the coin of the realm were passed, their products would be acceptable and approved. Such statements can be unqualifiedly condemned as not having a grain of evidence for their support. One interested in his own great medical organization and its welfare can firmly deny such charges and demand that the defamer offer either proof or retraction.

During the existing period of economic agitation nearly every state medical association has considered or selected some plan of caring for the low wage earners. Naturally these differ in many respects, depending on local conditions. Some critics have desired and even demanded that the American Medical Association publish a plan for treating these classes of patients that will supply nationwide demands instead, as they assert, of criticising the schemes devised by the states. A reasonable degree of consideration shows the futility of such a suggestion. It is impossible for anyone to devise a plan of caring for these patients which would be applicable to all the states and it is absolutely unreasonable to make such a demand of the American Medical Association. A pamphlet has been prepared outlining the various plans prepared in different sections of the country which is available on request. The association authorities can act only in an advisory manner with a desire to assist those seeking information and help to clarify existing uncertainties in any plan under consideration.

Although the relation of the individual physician to the American Medical Association has been repeatedly asserted, it appears that clarification is needed from time to time, not only for the enlight-

enment of the younger practitioners, but some of the older ones. Every member of a state medical association automatically becomes a member of the parent organization. He pays no dues to this organization, although some physicians appear to labor under the delusion that they do so. Fellowship in the same is obtained by paying the subscription price of the journal. A physician not a member of the association may subscribe to the journal, but he does not become a Fellow unless a member of his state association. If one consults the American Medical Directory, he will note that all physicians of the country are listed. The names of members of the American Medical Association appear in capitals, while the names of Fellows are indicated by a symbol.

That an organization of this size, composed of so many individuals of manifold dispositions and temperaments, should include a goodly number of disgruntled and dissatisfied members is a condition to be expected and unavoidable. If, however, these members would acquaint themselves with facts and would make an effort to ascertain the activities which are constantly being exerted for their protection and the promotion of their interests by this great organization, their feelings would surely be mollified and they would be led to realize the erroneous criticisms and complaints which they are harboring. The purpose of this discussion is to inspire the readers to acquaint themselves with their own national association of which they are individually members, and to realize that the responsibility of its maintenance and success devolves upon the physicians who compose its membership.

INFORMATION FOR STATE MEDICINE DEBATERS

In the high schools of our states the debate on state medicine is now in full swing, instigated by some of the eastern foundations, to promote advocacy of this form of practice. These high school boys and girls have no personal knowledge of the question which they are debating. They are simply mouthpieces for eastern propagandists who are striving to educate the younger generation into the belief that state medicine is desirable and that it will solve some of the problems of difficult existence.

Any available information to enlighten these debaters and the public is desirable for all concerned. Brief and pointed data are available, prepared by H. S. Atwood of Yakima, president of Yakima County Medical Society. After listening to one of these high school debates, he was immediately inspired to produce a contribution which concisely

and accurately summarizes the fallacies of the arguments presented by these youthful debaters. Briefly he outlines some of their leading arguments, showing the faulty bases on which they are founded and the incorrect conclusions which are reached. These corrections are supplemented by other arguments demonstrating the futility of state medicine and the false hopes on which its proponents are building.

Any physicians who come in contact with these high school debaters or are associated with teachers having them in charge would do well to obtain copies of Dr. Atwood's paper, both for the enlightenment of the principals and pupils as well as the public with whom they come in contact. It is stated that copies of this document are available and can be obtained by communicating with Dr. Atwood.

PROMOTION OF CANCER CONTROL

During recent years in all parts of the country the medical profession has been active in spreading information concerning diagnosis and treatment of cancer, especially emphasizing its early recognition. These efforts have been efficiently supplemented by the activities of American Society for the Control of Cancer. This society has directed its efforts to surveying and recording basic facts pertaining to the cancer problem which have been constantly available for medical men who are working along these same lines. The paramount purpose of all such organizations is to emphasize the necessary facts in the minds of the laity so that they may become cancer conscious and impelled to seek proper information from those educated concerning this problem.

This society, which during the past six years has constantly cooperated with the medical profession in its campaign of education, has announced that its major emphasis will now be devoted to a widespread and intensive campaign aiming to impart to the laity known facts concerning the prevention of cancer and the signs which may indicate its presence or the existence of precancerous lesions.¹ It aims to spread cancer information among the millions now in ignorance of its early diagnosis and treatment. Under the auspices of nearly every state medical organization there is a cancer committee existing for the purpose of carrying on this sort of work. With the cooperation of these efforts on the part of American Society for the Control of Cancer the encouraging belief will prevail that more progress can be anticipated for the control of cancer than has existed in the past.

¹. Editorial: Bull. Am. Soc. Control Cancer, 17:9-10, Nov., 1935.

TUBERCULOSIS SEAL SALE

The sale of Christmas Seals to obtain funds to promote the antituberculosis campaign has become an established feature for this season of the year. On another page will be found an advertisement calling attention to this seal sale. Since all members of the medical profession are concerned in helping to suppress tuberculosis, they will naturally be interested in helping to promote the sale of these revenue producing Christmas seals.

MEDICAL NOTES

COMBINATION OF PUBLISHING HOUSES. All readers of medical books are familiar with the splendid publications which have been issued for many years by Paul B. Hoeber, Inc., of New York. It has been announced that Harper & Brothers have acquired this medical book publishing business and that medical books will be hereafter issued under the name of Paul B. Hoeber, Inc., Medical Department of Harper & Brothers. It is unnecessary to commend the Hoeber publications, because every reader is familiar with the fact that they have been unsurpassed among medical publications.

THE NEW PHARMACOPOEIA, the Eleventh Revision, will be available December 16. Ever since 1820 a new edition has been issued every ten years. This volume is the official basis for the determination of the value of drugs. As directed by the U. S. P. Convention, the Board of Trustees has fixed June 1, 1936, as the date when the standards of the new Pharmacopoeia shall become official. This volume is published by Mack Printing Company of Easton, Pa.

OREGON

RESEARCH IN PHYSIOLOGY. The University of Oregon Medical School is in receipt of announcement by Dr. Robert A. Lambert, Director of Medical Sciences of the Rockefeller Foundation of New York, appropriating \$2,000 to the Department of Anatomy in the Medical School for the prosecution of certain research studies. The appropriation is the result of a recent visit to the Medical School by an officer of the Foundation. The work to be financed by this appropriation will be carried out by Professor William F. Allen and Professor Olof Larsell, Professors of Anatomy in the Medical School. The work has to do with problems of physiology of the brain, particularly with regard to the sense of smell and associated reactions.

DESERVED RECOGNITION. Ofttimes a medical discovery, valuable to the whole profession, fails to receive the recognition which is its due. It is pleasing to observe that this is not true of the efficient treatment of burns which was introduced by Adalbert G. Bettman of Portland. The addition of nitrate of silver to the tannic acid treatment previously employed has produced startling results recognized by the profession of this country as well as European nations, as indicated by medical publications in those countries. Dr. Bettman has recently returned from an extensive trip when he appeared before various medical organizations with illustrations and demonstrations of his treatment. He well deserves the commendation which he has received for the introduction of this improved method of treatment.

VETERANS HOSPITAL TRANSFERRED. As a result of the damage from earthquake at Fort Harrison, Helena, Mont., the Veterans Administration facility at that location has been transferred to the facility at Roseburg. The transference from Helena and other points will add thirty new employees to the Roseburg hospital, making a total of one hundred sixty-two staff members. Since the local hospital was put into service there has been a lack of sufficient personnel. About forty veterans will be transferred to this institution from Helena.

NEW HOSPITAL TO BE OPENED. A hospital is to be opened at Hermiston, known as Hermiston General Hospital, which will be equipped for general medicine and major surgery. It will be managed by Mr. and Mrs. Alton Kingsbury, the latter of whom is a graduate nurse. The hospital will be equipped with ten beds.

CONSTRUCTION OF INFIRMARY. Bids have been called for construction of an infirmary at University of Oregon at Eugene. The building will be erected at a cost of approximately \$120,000 which will be partly financed by PWA funds. It is anticipated that construction on this building will begin at an early date.

WASHINGTON

RAILROAD DEPOT CONVERTED TO HOSPITAL. At Longview the old railway depot, built in 1925 and long unoccupied, has been secured and will be the new location for Cowlitz General Hospital. A ten year lease has been obtained on the building which will be extensively remodeled for hospital purposes. The location, the appearance of the building and spacious grounds are considered satisfactory for this purpose. It will have a capacity of thirty or forty beds with all necessary hospital equipment.

HOTEL REMODELED FOR HOSPITAL. For a long time there has been talk of remodeling the old Fairhaven hotel at Bellingham to convert it into a county tuberculosis hospital. Plans for such remodeling have now been completed by the county engineer and have been submitted to the Works Progress Administration officials in Seattle. It calls for an estimated expenditure of about \$47,000. The project includes clearing and grading about forty acres of land in the vicinity of the proposed airport west of the city to be used for gardening for the hospital.

HOSPITAL ENLARGEMENT COMPLETED. Completion of the new wing at Aldercrest Sanatorium in Snohomish county and extensive remodeling of the entire structure provides a well equipped and modern institution for the treatment of tuberculous patients. Furnishing of the building will be provided for by the county commissioners. For a long time the institution has been crowded and new accommodations for patients have been urged. The project included an infirmary building 50x100 feet, and an addition to the women's pavilion, 15x21½ feet.

SANATORIUM DEDICATED. With the presence of state officials and about 150 other interested people, the Rock Creek Home, Lewis County's new tuberculosis sanatorium, was formally dedicated October 28. It is located at McCormick. The sanatorium was opened with a program in which prominent citizens of the county participated. The institution was built at a cost of about \$20,000.

NEW HOSPITAL ASSURED. Residents of Coupeville and vicinity have discussed for a long time the erection of a hospital at that city. A recent meeting of citizens voted to ask for a bond issue of about \$15,000 for the construction of such an institution. It is anticipated that it will be self-supporting.

WASHINGTON PHYSICIAN IN ETHIOPIA. George C. Bergman, formerly of Spokane, is medical director of Zauditu Memorial hospital in Addis Ababa which was presented several years ago by Emperor Haile Selassie to the Seventh Day Adventist Church. Dr. Bergman is head of the imperial staff of doctors, connected with three hospitals, all donated by Haile Selassie or minor kings.

WASHINGTON STATE RADIOLOGICAL SOCIETY was organized in October with a dinner and meeting at College Club, Seattle. Several out of town radiologists were present. Meetings will be held on the fourth Monday of each month.

IDAHO

MEDICAL ADVISER APPOINTED. J. D. Dunshee, formerly city health officer of Pasadena, Calif., has been appointed medical adviser to the State of Idaho. He will begin his work December 15. Through aid obtained from Rockefeller Foundation an adequately trained public health adviser has at last been secured. Dr. Dunshee accomplished notable results as health officer in the California city and recently has been connected with the State Department of Health of California.

HOSPITAL IMPROVEMENTS. Improvements approximating \$5,500 are being made in Lakeside Hospital, Coeur d'Alene. A two story addition is being built, 29x36 feet, increasing the hospital capacity by eight beds to a total of twenty-three. The owner is Harold J. Sturges.

PANHANDLE MEDICAL SOCIETY held a meeting at Sandpoint October 24 in the G. A. R. hall. The meeting was preceded by a dinner, the medical meeting beginning at 8 p.m. J. R. Bean of Wallace gave an address on "Health Insurance," followed by general discussion.

L. C. KROTCHER, formerly of Wayne, Neb., has located for practice at Coeur d'Alene. He will take the practice of E. L. Spohn who is spending the year in postgraduate work at the University of Pennsylvania.

OSCAR L. ZESCHIN, who has practiced for the past four years in Seattle, after serving as interne in Seattle General Hospital, has located for practice at American Falls. He will be associated with V. G. Logan.

FRANCIS L. RICHARDSON has located for practice at Weiser. For the past nine years he has been physician and surgeon for Western Electric Company and other companies in Chicago.

H. E. PATTON, who has practiced in the past at Denver, Colo., has moved to St. Maries. He will there engage in practice in association with O. D. Platt.

WEDDING. Richard D. Simonton of Boise was married to Miss Marguerite Anne Genten at Winona, Minn., on October 11. Mrs. Simonton has been secretary to The Mayo Hospital at Rochester, Minn., for a number of years.

OBITUARIES

DR. CORTES H. WHEELER of Portland, Ore., died October 31, aged 86 years. He was born in Dearborn County, Ind., in 1849. With his parents he crossed the plains in a covered wagon to Oregon Territory in 1852. After studying in district schools, he returned to Indiana, where he studied at Moores Hill college. He obtained his medical degree from Medical College of Ohio at Cincinnati in 1875. He began practice in San Francisco and shortly afterwards by sailing vessels arrived at Marine Hospital at Port Townsend, Wash. He sailed as a physician on a Pacific mail boat and then spent a short time in practice at St. Paul's Island, Alaska. He resumed practice in San Francisco in 1878 and located for practice in Portland in 1880, where he engaged in general practice until his retirement. He was instrumental in establishing the city health office of the city and for many years he was health officer.

DR. MABEL SEAGRAVE of Seattle, Wash., died November 10 from cerebral hemorrhage, aged 53 years. She was born at Cheyenne, Wyo., in 1882. In 1889 she moved with her parents to Seattle, where she attended preparatory school. In 1905 she graduated from Wellesley College, when she returned to Seattle and taught for two years in Broadway high school. She obtained her medical degree from Johns Hopkins University School of Medicine in 1911. In 1918 she went to France with Women's Overseas Hospital unit, where she worked among refugees in the department of Landes. After the armistice she served near Nancy, returning to Seattle in 1919. She received the Medaille d'Argent for her work among refugees. She was one of the best known physicians in the city, having the respect and affection of the medical profession and a large circle of friends.

DR. WALTER V. SPENCER of Portland, Ore., died there in the Veterans Hospital, November 4, aged 60 years. He was born at McMinnville in 1875. After graduating from the University of Oregon in 1902 he entered University of Oregon Medical School, from which he obtained his medical degree in 1904. He practiced in Portland until the war, in which he served as naval surgeon. At the conclusion of the war he entered the Veterans Bureau service, being located in hospitals in Texas, Tennessee, North Carolina, New Mexico and Cushman hospital, Tacoma. For the past five years he had been at the head of the surgical division of Veterans Hospital, Legion, Texas.

DR. ALBERT C. HANSON of Portland, Ore., died suddenly November 7 from disease of the heart, aged 55 years. He was born in Portland in 1880 where he attended school, obtaining his medical degree from University of Oregon in 1905. He began practice at John Day, later moving to Enterprise. Ill health caused him to suspend practice for a time. At the outbreak of the war he was appointed to the Department of Agriculture which office he retained until the armistice, when he resumed practice in Portland which he continued until the time of his death.

DR. WILLIAM T. FLYNN of Everett, Wash., died October 22 after a prolonged illness, aged 55 years. He graduated in 1905 from Minneapolis College of Physicians and Surgeons. He practiced in Everett since 1913. He was surgeon in that city for the Great Northern Railway.

REPORTS OF SOCIETY MEETINGS

OREGON STATE MEDICAL SOCIETY

MINUTES OF THE SIXTY-FIRST ANNUAL SESSION OF OREGON STATE MEDICAL SOCIETY, HELD AT GEARHART, OREGON, SEPTEMBER 19-21, 1935 HOUSE OF DELEGATES

FIRST SESSION

Thursday, September 19

The opening session of the House of Delegates was called to order by President A. M. Webster at 7:30 a.m. at Hotel Gearhart.

On roll-call, the following members of the Council were present:

A. M. Webster, president; W. T. Johnson, past president; G. A. Massey, president-elect; K. H. Martzloff, first vice-president; O. F. Akin, treasurer; Blair Holcomb, secretary; Councilors T. Tharaldsen, T. W. Watts, C. E. Sears, F. E. Fowler, C. T. Sweeney, E. D. Lamb, and H. A. Cary; E. J. Zimmerman, alternate delegate to the American Medical Association.

The following delegates were present: L. S. Kent of Eugene and H. R. Kaufman of Toledo, Central Willamette Medical Society; S. A. Kleger of Astoria, Clatsop County Medical Society; E. D. Johnson of Klamath Falls, Klamath and Lake County Medical Society; C. E. Hunt of Eugene, Lane County Medical Society; D. C. Burkes, L. A. Goldsmith, R. H. Kaufman, W. F. Hollenbeck, B. R. Brooke, L. T. Jones, T. W. Adams, B. A. Van Loan, J. R. Montague, G. W. Millett, C. P. Wilson, R. M. Dodson, S. H. Sheldon, A. G. Bettman, A. C. Jones, and J. A. Pettit of Portland, Multnomah County Medical Society; W. W. Baum of Salem, York-Yamhill-Marion Medical Society; H. A. Woods of Ashland, South Oregon Medical Society. The executive secretary was also present.

President Webster announced the appointment of the following Committee on Credentials: W. T. Johnson, chairman; W. F. Hollenbeck, T. W. Adams.

W. T. Johnson, chairman of the Committee of Credentials, reported that in the absence of the regularly elected delegates from certain component societies, several members were present and eligible to be seated. On motion duly made and seconded, J. C. Hayes of Medford, Jackson County Medical Society; L. V. Moore of The Dalles, Mid-Columbia Medical Society; A. J. Browning and J. H. Fitzgibbon of Portland, Multnomah County Medical Society; W. K. Ross of La Grande, Union County Medical Society; were seated by vote of the House.

On motion duly made and seconded, it was voted to dispense with the reading of the minutes of the last session, the same having been printed in the December, 1934, issue of *NORTHWEST MEDICINE*.

President Webster announced the appointment of the following committees:

Resolutions—J. H. Fitzgibbon, chairman; J. R. Montague, A. J. Browning, C. T. Sweeney, E. D. Lamb; New Business—C. E. Sears, C. E. Hunt, W. J. Weese.

President Webster stated that, inasmuch as there was no unfinished business before the House, he would not appoint a committee on this subject.

President Webster stated that he had not appointed the Committee on Revision of Constitution and By-Laws during the past year and would therefore appoint the committee at this time, to consist of D. C. Burkes, chairman; F. E. Fowler, G. A. Hurley.

President Webster announced that it was the duty of the House to select the Committee on Nominations. On motion

duly made and seconded, it was voted that the committee consist of three members. The following were nominated: C. E. Sears, E. D. Lamb, E. D. Johnson, R. M. Dodson, L. T. Jones, F. E. Fowler, B. A. Van Loan, and S. H. Sheldon. The members of the House voted by individual secret ballot with the result that Drs. Sears and Fowler received a majority of the votes cast and were declared elected. Drs. Johnson and Lamb were tied for the third place on the committee. The tie was decided by flipping a coin. Dr. Johnson won and was declared elected.

Communications

A letter from Dr. William C. Woodward, Director of the Bureau of Legal Medicine and Legislation of the American Medical Association, was read. The letter reviewed the efforts of the Association to obtain from the Commissioner of Internal Revenue a decision overruling the practice of the Revenue Agent in Charge at Seattle in disallowing the automobile expense of Oregon physicians in computing their income tax.

Report of the Secretary

Your secretary submits the following report of the principal activities of the Society during the year just past, as well as a summary of the major matters acted upon by the Council and its Executive Committee.

Our membership roll is probably in the best condition in our history at this time in our fiscal year. The following tabulation indicates the status of our roster at this time:

	Owing prior to 1934 but paying	Paid 1934	Paid 1935	Totals
Active	31	59	544	634
Junior	1	11	33	45
Associate	1	1	12	14
Life				8
Honorary				19
Total.....	33	71	589	720

This favorable situation is due in large part to a broader appreciation by the medical profession of the state of the valuable services rendered by the Society in advancing the cause of scientific medicine in legislative matters, in bringing about improved conditions for physicians rendering medical service under the Workmen's Compensation Act, in developing plans to provide compensation for physicians caring for the unemployed, and in protecting physicians against unjustified malpractice suits through its medical defense service and reasonable-cost liability insurance plan.

Carrying out the recommendation adopted at the 1934 meeting of the House of Delegates that a campaign of education be conducted among the medical profession to inform them of the valuable efforts of the Society in their behalf, the publication of a bulletin called *The Medical Reporter* was begun and a state department section in *NORTHWEST MEDICINE* was established. These efforts were directed toward the goal of having every member of a component society become also a member of the state society. Marked progress was made in this direction as several component societies during the past year approximated 100 per cent membership in the state society.

The Council and its Executive Committee have discharged their functions with persistent attention. Monthly meetings of the Council were held throughout the year, except during July and August. Attendance has been excellent, due no doubt in part to the action taken at the 1934 meeting of the House of Delegates providing for the payment of the traveling expense of Council members. At the invitation of the Klamath and Lake Medical Society the May meeting was held at Klamath Falls with a large representation of the local medical profession present. Such meetings are of unquestionable value in bringing knowledge of the Council's work to the local membership.

The Executive Committee has met frequently during the interim between Council meetings. All actions of the Committee were reported at the following meeting of the Council for approval.

The following summary lists the major actions of the Council and its Executive Committee during the year:

1. Authorized the Committee on Public Policy to institute proper legal proceedings to enjoin the Secretary of State from certifying the Healing Arts Constitutional Amendment for printing on the November ballot.
2. Directed the Secretary to organize a committee to carry on a campaign of education among members of the component societies concerning state society activities in order to bring to practical fruition the regulation requiring that all members of component societies must also be members of the state society.
3. Authorized the Treasurer to negotiate a loan of \$2500 for the campaign against the Healing Arts Constitutional Amendment and to deposit bonds from the General Fund as security.
4. Authorized the Committee on Public Policy to hold a meeting with the physician-members of the state legislature prior to the 1935 session and authorized the payment of the expense incidental to this meeting.
5. Requested the American Medical Association to file a memorandum of protest with the Commissioner of Internal Revenue at Washington, D. C., concerning the disallowance by the Revenue-Agent-in-Charge at Seattle of physicians' automobile expense in 1932 income tax returns.
6. Abolished the special Committee on Public Health and Disease Prevention and transferred its functions to the Committee on Clinic and Institutional Medical Care.
7. Approved a budget based on \$15 annual dues for 1935.
8. Authorized the making of a request to the Board of Trustees of Northwest Medical Publishing Association that an Oregon section be provided in *NORTHWEST MEDICINE* to be devoted solely to a discussion of organization problems and policies, and approved the appointment of A. G. Bettman of Portland as editor of this section.
9. Elected E. D. Lamb of Klamath Falls as Councilor for the Fifth District, replacing C. E. Leithead of Lakeview.
10. Authorized the Woman's Auxiliary to participate in the movement for the Dr. John McLoughlin Memorial at Oregon City.
11. Authorized the Committee on Public Policy to seek the enactment by the 1935 state legislature of a measure requiring every person who uses the title, "doctor," in connection with the healing art to indicate the school of practice in which he is licensed.
12. Expressed its opposition to the use of the University of Oregon Outpatient Clinic for the care of those on relief beyond the normal load for teaching purposes.
13. Requested Governor Martin to fill as many vacancies in county relief committees as possible by the appointment of physicians and submitted lists of physicians in each county from which he might select.
14. Approved a program of cancer control activities submitted by the Committee on Cancer Control.
15. Approved the publication of the bulletin, *The Medical Reporter*, as proposed by the special Committee of Publicity.
16. Expressed disapproval of the giving of publicity to federal income tax returns and requested the Oregon delegation in Congress to assist in repealing this provision of the Revenue Act of 1934.
17. Submitted to the State Industrial Accident Commission a list of six members from which to select members to fill vacancies in the Liaison Committee.
18. Submitted to Governor Martin a list of members for his consideration in the event he contemplated any changes in the personnel of the State Board of Health or the State Board of Medical Examiners.
19. Expressed disapproval of the proposed drastic limitation of army flight surgeons and requested the Oregon delegation in Congress to oppose this feature of the army appropriation bill.
20. Requested the American Medical Association to supply legal counsel in the case of Ralph C. Matson of Portland on appeal to the Board of Tax Appeals from the action of the Internal Revenue Division, disallowing automobile expense in his 1932 income tax returns.
21. Directed the executive secretary to represent the Society at the conference on medical service plans held at the headquarters of the American Medical Association on April 27, 1935.
22. Voted to request the component societies to submit their recommendations to the Council in all instances where state board appointments of a regional character are involved.
23. Expressed its disapproval of solicitation by physicians through newspaper advertising or otherwise of patients on relief rolls, and requested the State Relief Committee to adopt a rule excluding any physicians who may resort to such practices from eligibility to care for patients under the medical relief program.
24. Appointed an advisory committee to cooperate with the State Board of Health under the terms of House Bill 373 requiring the approval of laboratories by the Board.
25. Invited the Pacific Northwest Medical Association to hold its 1936 meeting in Portland.
26. Expressed the thanks of the Society to James A. Best of Pendleton, C. T. Hockett of Enterprise, and J. F. Hosch of Bend, for their splendid cooperation in connection with medical legislation during the 1935 session of the state legislature.
27. Authorized the presentation of the subject of sickness insurance to the senior class at the University of Oregon Medical School by a representative of the Society.
28. Prepared a statement of policy to govern the relations between the Society and the Oregon Branch of the American Society for the Control of Cancer and submitted the same to the President of the Oregon Branch.
29. Voted to recommend to the House of Delegates that a Committee on Maternal Welfare be created to cooperate with the American Committee on Maternal Welfare, Inc.
30. Appointed a committee consisting of the Executive Committee, the Dean of the University of Oregon Medical School, and the State Health Officer to work out the operation of the Federal Social Security Act in Oregon.
31. Voted to reimburse Dr. Ralph C. Matson of Portland in the amount of \$100 for legal services involved in his appeal to the Board of Tax Appeals concerning the disallowance of automobile expense in his 1932 federal income tax return.
32. Voted that the Executive Committee act as an advisory committee to the State Board of Health in considering matters of policy.
33. Authorized the appointment of a committee to study and report concerning the recent establishment of a W P A project at the University of Oregon Medical School Outpatient Clinic to provide medical care for persons on relief.
34. Authorized that the Society be announced as the agency through which material expressing the viewpoint of organized medicine concerning sickness insurance be made available for college, university, and high school debates.
35. Voted to submit the following amendments to the By-Laws to the House of Delegates at the Gearhart session:

To amend Section 2 of Chapter VIII so as to read as follows:

Section 2. The Committee on Scientific Work shall consist of three members, of whom the Secretary shall be Chairman. The remaining two members shall be appointed annually by the President. This Committee shall determine the character and scope of the scientific proceedings of the Society for each session, subject to the instructions of the House of Delegates or the Council. Thirty days previous to each annual session it shall prepare and issue a program announcing the order in which papers and discussions shall be presented.

To amend Section 6 of Chapter I so as to read as follows:

Section 6. Physicians who have been active members of the Society in good standing for twenty years shall be eligible to life membership. They shall be entitled to all privileges of active membership so far as voting and holding office are concerned and shall pay dues equivalent to the annual subscription charge of the official journal. On written application such membership may be granted by action of the Council.

In closing this report, your secretary desires to emphasize the numerous matters of vital importance which have been given painstaking attention by the Council and its Executive Committee as indicated in this summary. I desire also

to take this opportunity to acknowledge my appreciation of the splendid cooperation accorded me in the performance of my work as Secretary by our officers, councilors, committeemen, and executive secretary, and the membership as a whole.

BLAIR HOLCOMB, *Secretary*.

On motion duly made and seconded, it was voted that the report of the Secretary be accepted and referred to the Committee on New Business.

Report of the Treasurer

Your Treasurer submits the following report of the finances of the Society, based on our most recent six months' accounting period ending June 30, 1935. A detailed report for this period prepared by Mr. C. T. Kronenberg, certified public accountant, will be submitted with this report.

GENERAL FUND

Receipts from members' dues have been the best of any similar six months period since 1932, a total of \$8,149.91 having been received. Since the reduction in dues to \$15 all dues are placed in the General Fund, the allotment of \$3 per member per year to the Medical Defense Fund having been discontinued.

On June 30, 1935, the current cash balance in the General Fund was \$1,984.32, plus a savings account of \$248.16, or a total of \$2,232.48. Bills payable, including expense items and turnovers of local society dues, totaled \$873.25, leaving a net cash balance of \$1,359.23.

This is an extraordinary showing when we consider that during the past year the sum of \$4,279.66 was spent for legislative purposes, largely in the successful fight against the Healing Arts Constitutional Amendment. This large sum represents an unusual expense which necessitated making a loan of \$2,500 in order to avoid cashing in invested securities.

During the past six months, this loan has been repaid from current receipts and all current expenses have been met from the same source. The fact that at the close of the period a net cash balance of \$1,359.23 was still on hand, our invested securities were still intact, and even added to in the second half of 1934 by the purchase of a U. S. Treasury Bond in the amount of \$1,024.92, is cause for unusual elation. We doubt whether many institutions have gone through a period of depression, besides repelling an attack on its standards of such magnitude as the Healing Arts Constitutional Amendment, with such a favorable termination.

MEDICAL DEFENSE FUND

The Medical Defense Fund no longer receives any allotment from current dues and its increase depends almost entirely on interest received from funds in savings accounts or securities. Demands on this fund are infrequent and will doubtless be largely limited to cases in which additional legal counsel may be felt desirable in suits on appeal to appellate courts following an adverse decision against a member in the lower courts. Total receipts during the period under consideration consisted of \$6 turned over from members' dues received for 1932 and \$355.53 arising from interest on invested securities, or a total of \$361.53. There were no disbursements during the period. The cash balance in the savings account at the close of the period was \$4,701.94, this large balance being largely due to the calling of \$3,000 Canadian Railway Bonds for the sum of \$3,108.10.

INVESTED FUNDS

On June 30, 1935, the invested funds of the General Fund consisted of securities costing \$5,558.72. The market value of these securities was \$5,501.25 which was an appreciable gain over the value a year ago and approximates cost.

On June 30, 1935, the invested funds of the Medical Defense Fund consisted of securities costing \$15,259.13. The market value of these securities was \$13,901.87 which likewise was an appreciable gain in value over that of a year ago.

On September 3, 1935, the sum of \$4,565.50 was withdrawn from the Medical Defense Fund savings account in order to reduce the large balance previously referred to and used to purchase \$4,500 U. S. Treasury Bonds—2 7/8%—1955-60. The total amount reported in the previous para-

graph as invested in securities has thus been augmented to this extent.

In conclusion, your Treasurer wishes to express the opinion that the finances of the Society are on a firm foundation, with sufficient reserves to meet any emergency situation with which organized medicine in Oregon may reasonably expect to be confronted in the near future.

OTIS F. AKIN, *Treasurer*.

On motion duly made and seconded, it was voted that the report of the Treasurer be accepted and referred to the Committee on New Business.

Report of the Delegate to the American Medical Association

The past year has been fraught with events of the utmost importance to organized medicine, arising not only from the continued burdens of the depression period, but also from political and social attacks upon existing forms of medical practice, aimed at us not only by those lay influences which would profit by directing our activities, but also by ill-advised and hasty proponents of cooperative medical schemes within our own ranks.

Because of the imminence of national legislation proposing federal health insurance, the Trustees of the American Medical Association called a special session of the House of Delegates in Chicago, February 15 and 16, 1935, which unanimously passed the following resolutions: (These have been published in *Journal of the American Medical Association*.)

The Bureau of Medical Economics was directed to prepare a comprehensive digest of all existing medical aid plans and a meeting of state secretaries and other representatives sent by state societies was held during April to discuss the operation of these plans.

The meeting in Atlantic City, June 10 to 14, was the largest medical gathering ever held, with a registration of 8,469. The scientific sessions were held jointly with those of the Canadian Medical Associations, and a large number of Canadian medical men were in attendance.

The President's address highly commended the Oregon State Medical Society for its decisive victory over the cult referendum.

The Secretary reported membership in excess of 100,000. Participation of headquarters officials in the programs of state societies was urgently recommended, in order that members throughout the country may be kept in touch with national problems, and be given information from the great volume of material available in every department of the central office. Also the headquarters officers desire first-hand advice regarding the problems of local societies. President Biering, Dr. Woodward, Dr. Leland, and Dr. Bauer have all visited Oregon during the past year on such missions.

Attention of the members of this House of Delegates is invited to the full reports of the proceedings at Atlantic City as reported in the *Journal of the American Medical Association*, June 22 and 29.

The dissemination of press and radio statements respecting the attitude of the American Medical Association toward sickness insurance and allied problems was approved, and the Bureau of Economics was directed to furnish such material to all component societies, and also to prepare brief outlines of current activities, to be published in the *Journal of the American Medical Association* and *Hygeia* and sent to all members.

The Special Report of the Bureau of Medical Economics was approved after strengthening certain statements. It is pointed out that no standard fee schedule can be made to cover all medical organizations; also, "that in whatever way the cost of medical service may be distributed, it should be paid for by the patient in accordance with his income status and in a manner that is mutually satisfactory."

Attention was directed to the Bureau's study of health services in colleges and universities, which is nearing completion.

The so-called Epstein bill was not passed in any state when it was introduced.

Any direct or indirect arrangements by which commissions are paid for solicitation or coercion is exercised over indi-

viduals to compel patronage of any system of service in competition with private practitioners is unethical.

(Methods for collecting medical fees were discussed, mention being made of the good and bad plans. Analysis was made of methods for care of indigents. Dangers and complications of these plans enumerated.)

The House of Delegates requested the President and Surgeon-General of the Army to place *Hygeia* in every CCC camp, and also to restore the training of reserve medical officers in medical schools, which was discontinued this year.

The dangers of "integrating" all practitioners of the healing art into one organization were pointed out and the problems involved in such plans were referred to the Board of Trustees for study and recommendation.

Dr. Kelly of California on request explained at length the difficulties into which California practitioners were placed by reason of the submission of an interim committee report recommending compulsory medical insurance. After this inquiry had been started, politicians sensing an opportunity for jobs took charge of it and took it away from the physicians. In order to get control again the California society had to indorse the bill presented, which was severely attacked and turned over to another interim committee for action in 1937.

J. Tate Mason of Seattle, on nomination of Brien King, was chosen President-Elect; Kenneth M. Lynch, Charleston, S. C., Vice-President; Olin West and Herman L. Kretschmer were reelected Secretary and Treasurer respectively.

Nathan B. Van Etten, New York, was elected Speaker and H. H. Shoulders, Nashville, Vice-Speaker, of the House of Delegates.

Since J. H. J. Upham and Joseph Pettit had served two terms as Trustees, and were hence ineligible, James R. Bloss, West Virginia, and Ralph A. Fenton, Oregon, were elected to fill these vacancies.

Kansas City was selected for the 1936 meeting.

In laying down the work of Delegate for the Oregon State Medical Society and taking up that of Trustee of the American Medical Association, permit me to say that Oregon has been fortunate indeed to have had Joseph A. Pettit on the Board of Trustees for the past ten years. I have not always agreed with Dr. Pettit, but I have watched him grow with his job to a degree of usefulness and understanding of the problems of organized medicine which his colleagues in the Board praised in highest terms. He has worthily carried on the fine tradition established by Dr. Williamson, and it is not only a very great honor but a call to duty which confronts one to whom this difficult position has come unsought. I shall hope to deserve it, and to serve the Oregon State Medical Society in the future as I have in the past, without expectation of reward.

May I in closing be permitted to suggest that, while I have during my incumbency paid my own expenses to the American Medical Association meetings which I attended in connection with other duties, it might be proper in line with the practice of other states for this Society to pay the Delegate's rail and Pullman fare hereafter.

In view of the very serious problems confronting our profession in these coming years, let me as a Trustee of the American Medical Association beg you to consider carefully whether any form of social medicine, sponsored by medical groups or not, may not carry within it the dangers of political or social worker control, as evidenced by recent events to the south of us, and by the development of local co-operatives into the British panel system. Be well assured that lay groups are even now forming plans to assimilate and profit by the cheap rate organizations which certain enthusiastic doctors, one might almost say doctrinaires, are eagerly advocating. No medical plan which is not actively controlled and directed by its local medical society, permitting participation by any and all members, can fail to arouse bitter criticism among physicians whose patients have been solicited to join. Now, if ever, must our profession be united, upholding the highest traditions of individual and personal service.

RALPH A. FENTON, *Delegate to American Medical Assn.*

On motion duly made and seconded, it was voted that

this report be accepted and referred to the Committee on New Business.

C. T. Sweeney stated that the Woman's Auxiliary to Jackson County Medical Society had compiled a history containing biographic data concerning members of that society and that this material was available to Oregon State Medical Society. On motion duly made and seconded, it was voted that this offer be accepted and an expression of thanks tendered to the Woman's Auxiliary to Jackson County Medical Society.

At 9 a.m. it was voted to adjourn until 7:30 a.m. on Friday.

SECOND SESSION

Friday, September 20

The House of Delegates was called to order by President A. M. Webster at 7:30 a.m. at the Hotel Gearhart.

On roll-call, the following members of the Council were present:

A. M. Webster, president; G. A. Massey, president-elect; K. H. Martzloff, first vice-president; W. J. Weese, second vice-president; O. F. Akin, treasurer; Blair Holcomb, secretary; Councilors T. W. Watts, C. E. Sears, C. T. Sweeney, E. D. Lamb, J. P. Brennan, H. A. Cary; E. L. Zimmerman, alternate delegate to the American Medical Association.

The following delegates were present: J. C. Vandervert of Bend, Central Oregon Medical Society; L. S. Kent of Eugene and H. R. Kauffman of Toledo, Central Willamette Medical Society; S. A. Kleger of Astoria, Clatsop County Medical Society; R. G. MacDonald of St. Helens, Columbia County Medical Society; J. J. D. Haun of La Grande, Eastern Oregon District Medical Society; J. C. Hayes of Medford, Jackson County Medical Society; E. D. Johnson of Klamath Falls, Klamath and Lake Medical Society; C. E. Hunt and G. A. Hurley of Eugene, Lane County Medical Society; J. A. Reuter of The Dalles, Mid-Columbia Medical Society; D. C. Burkes, R. H. Kaufman, W. F. Hollenbeck, L. T. Jones, G. W. Millett, R. M. Dodson, S. H. Sheldon, A. G. Bettman and A. C. Jones of Portland, Multnomah County Medical Society; W. W. Baum of Salem and G. B. Smith of Woodburn, Polk-Yamhill-Marion Medical Society; H. A. Woods of Ashland, Southern Oregon Medical Society; W. K. Ross of La Grande, Union County Medical Society.

A considerable number of members of the Society and guests were also present, including R. B. Dillehunt, Dean of the University of Oregon Medical School, and C. A. Smith of Seattle, editor of *NORTHWEST MEDICINE*.

The executive secretary was also present.

Communications

A letter from Dr. Sard Wiest, chairman of First Aid and Life Saving, Multnomah County Chapter of the American Red Cross, was read. The letter called attention to a statewide campaign of first aid projects which conflict with those of the American Red Cross and do not meet with its approval, and in which equipment not scientifically accepted was being employed. This communication was referred to the Committee on New Business.

Report of Committee on Public Policy

The work of your Committee on Public Policy during the past year embraced activities before the general electorate as well as attention to matters of concern to scientific medicine in the State Legislature and the U. S. Congress. The year just elapsed presented probably the gravest problems with which organized medicine in Oregon has ever been faced.

CAMPAIGN AGAINST THE HEALING ARTS CONSTITUTIONAL AMENDMENT

The Healing Arts Constitutional Amendment, promoted by chiropractors and naturopaths of the state, represented the most serious challenge which has yet been made to medical standards in Oregon. Its enactment would have meant

the lodgment in the State Constitution of provisions granting cultists equal rights with educated physicians to practice in all hospitals, and to care for injured workers under the protection of the Workmen's Compensation Act, as well as provisions conferring upon the chiropractic and naturopathic boards of examiners power to grant certificates authorizing the full practice of medicine and surgery. The enactment of this vicious amendment would also have nullified the Basic Science Law, the passage of which was obtained by our society and numerous lay organizations after many years of strenuous effort.

The defeat of this amendment in every county in the state by large majorities, and in the state as a whole by a 3 to 1 vote, was a tribute to the strength of organized medicine and to the ability of our competent societies and their women's auxiliaries to follow out the plan of campaign developed by your committee.

The campaign was directed from our headquarters office for which reason a substantial saving was made in the expense involved. The \$4700 expended during the year for all legislative purposes was almost entirely spent for printing, newspaper advertising and radio time in connection with the campaign. All the details of the campaign were handled by our own employees with a small amount of additional clerical help.

Your committee is of the opinion that the campaign was of great value aside from accomplishing the defeat of the measure itself. It was in effect an intensive educational program, in which many of the important facts concerning medical education, hospital standards and the scientific care of industrial workers were presented to the people. The dissemination of these facts undoubtedly produced effects on the lay public which will remain for many years to come.

Another effect, fully as important in the opinion of your committee, was the stimulus for cohesion among the medical profession and their wives which the amendment offered. There is no force so potent in producing solidarity in any group as an attack from without. This principle is as applicable to professional and other social groups as it is to nations.

MEDICAL LEGISLATION IN THE 1935 STATE LEGISLATURE

Not a single bill inimical to the public health or to scientific medicine was passed by the 1935 State Legislature. While the passage of no major medical legislation, such as the Basic Science Law of the 1933 session, was attempted, numerous bills of importance were enacted into law. The liaison between the State Legislature and our Society was the closest in history, due in large part to the splendid co-operation of Clyde T. Hockett of Wallowa County, Chairman of the House Committee on Medicine, Pharmacy and Dentistry; J. F. Hosch of Deschutes County, also on this committee; and James A. Best of Umatilla County, Chairman of the Senate Committee on Medicine, Pharmacy and Dentistry.

The defeat of the Healing Arts Constitutional Amendment at the hands of the general electorate retarded to a marked degree the activities of the chiropractors and naturopaths at the State Legislature. The cultists sponsored only two bills, both providing for compulsory attendance of their licensees at the annual sessions of their respective state associations, which were termed "postgraduate meetings," or attendance at postgraduate courses at a cult college. The second of these bills also proposed to add some new subjects and additional hours to the curriculum of naturopathic colleges, undoubtedly with the ultimate object of obtaining an expansion in the scope of naturopathic practice. Neither of these bills got out of committee.

The lack of activity by the cultists does not mean, however, that the session was devoid of medical legislation. On the contrary, more measures affecting the practice of medicine were introduced than at any session for many years, as will be indicated by the following summary. This tabulation includes the measures of major importance to the medical profession and indicates the fate of each bill.

BILLS ENACTED INTO LAW

(House Bills and Senate Bills enacted into law were enumerated by number and the substance of each abstracted. For lack of space they are omitted. Bills defeated were presented in similar manner.)

DOCTORS' TITLE BILL

The only measure sponsored in behalf of the Society by your committee was the so-called Doctors' Title Act. The purpose of this measure is to prevent the widespread deception practiced largely by chiropractors and naturopaths who in recent years have been using the title, "doctor," in advertising and on business cards, coupled with such words as "rectal specialist," "specialist in diseases of women" and even "psychiatrist," without stating that they are chiropractors and naturopaths. The result has been that many people have consulted these individuals in the belief that they were obtaining the services of a regular doctor of medicine.

The new law requires that any person using the title "doctor," or any contraction thereof, such as "Dr.," "M.D.," "D.O.," "D.C.," etc., must add the appropriate word or words in full indicating the branch of the healing art which the individual is licensed to practice.

The law applies in every situation in which the title, "doctor," or any of its contractions is used in the practice of the healing art. The requirement must therefore be observed in connection with letterheads, envelopes, statements, prescription blanks, directory listings, building directories, office doors and windows, and signs of any nature. The law does not apply to social correspondence nor to any situation in which the doctor is not acting in a professional capacity.

Your committee urges careful observance of the new law by the medical profession in spite of the temporary inconvenience which compliance may involve. Enforcement of the law against cult practitioners is likely to be much more effective if our own group displays prompt acquiescence with this new requirement.

MEASURES RELATING TO VENEREAL DISEASE CONTROL AND LABORATORIES

Probably the most difficult situation with which your committee was confronted during the session arose over two bills relating to venereal disease control and laboratories which were introduced at the request of the State Health Officer. Severe criticism was directed at these bills by the clinical pathologists among our membership.

The first bill (H. B. 181) was a new act for the control of venereal diseases. Among other things, it provided that the State Hygienic Laboratory might furnish laboratory examinations for the diagnosis of venereal diseases, but it was not specific as to whether such service was to be limited to the indigent. This provision raised the whole question as to the functions of the State Hygienic Laboratory, the legitimate scope of its services, and the abuses which have developed. The clinical pathologists took the position that the laboratory should serve the indigent only and that the extension of its services to those able to pay for laboratory service, as has prevailed in the past and apparently proposed to be continued under the new act, was direct competition with private medical practice and a form of state medicine as unjustifiable as if general diagnosis and treatment were supplied to those able to pay. Our committee, after conference with the Executive Committee of the Council, joined in support of this viewpoint, as did the physician-members of the State Legislature and the legislators generally.

The result was that the provisions of the bill relating to service to be supplied in the diagnosis of venereal diseases by the State Hygienic Laboratory were amended to limit this service to cases in which a statement is submitted signed by the physician and the patient certifying that the patient is unable to pay for the requested service and that no charge will be made to the patient for services in obtaining the specimen.

Your committee anticipates that some objection may be made to this limitation by some physicians who may not be fully aware of the ultimate implications of a contrary policy. We are of the opinion that the activities of government in connection with all phases of medical care must be carefully watched. There appears to be no sound justification for the state to supply diagnostic service, in the form of laboratory examinations, to persons able to pay for such service in competition with physicians engaged in this branch of practice. The principle involved is that of state medicine versus private practice. We can only be on firm ground when we oppose state medicine in whatever form it may appear. We believe that this policy must be pursued even if some of us,

as individuals, may appear to suffer some temporary personal loss.

Following the amendment of the new venereal diseases act in this manner, a bill (S. B. 385) was introduced at the instance of the clinical pathologists and with the subsequent approval of your committee and the Executive Committee of the Council, to prohibit any charge being made for any test on specimens of human origin performed by a public laboratory or for services performed in the collection and sending of any such specimen to a public laboratory, except actual mailing and express charges. It should be pointed out that the functions of the various public laboratories are not now defined by statute, a circumstance which gives the administrative agencies in charge wide discretionary powers in determining the scope of public laboratory service. The bill in question proposed to correct this situation by, in effect, limiting the services of all public laboratories to tests for persons who are unable to pay. This bill was passed by the State Legislature but was vetoed by the Governor who was apparently not convinced that serious abuses existed.

The second bill introduced at the instance of the State Health Officer which aroused strong opposition from the clinical pathologists was H. B. 373, providing for the annual registration and regulation by the State Board of Health of laboratories engaged in the examination of infectious materials. Numerous objections were made, including the lack of specific standards for registration and the absence of a clinical pathologist with an M.D. degree in the personnel of the State Board of Health which was to administer the act. Your committee succeeded in resolving these differences by obtaining the insertion of an amendment providing that the State Medical Society shall appoint a committee of laboratory operators upon whose advice the State Board of Health shall administer the act.

MEDICAL LEGISLATION IN THE U. S. CONGRESS

While the American Medical Association is active before Congress in matters of legislation affecting scientific medicine, our Society and its component societies are responsible for keeping in close touch with our own senators and representatives. Our committee is in frequent contact with the American Medical Association on pending national legislation which is later discussed with the Oregon delegation in personal conference or correspondence.

SICKNESS INSURANCE

Prior to the convening of the recent session of Congress, our committee with the Executive Committee of the Council held conferences with Representatives Ekwall and Pierce concerning the dangers of a system of compulsory federal sickness insurance. The evils of compulsory sickness insurance were laid before Senators McNary and Steiwar and Representative Mott in correspondence. The entire delegation was most responsive to the point of view of organized medicine.

Somewhat later, when the Social Security Act was being drafted, our committee planned a campaign of telegraphic protest against the inclusion of compulsory sickness insurance which was participated in by a large number of members from all parts of the state. Protest was made at the same time against making the Department of Labor the administrative agency for social insurance. This provision was subsequently altered and an independent Social Insurance Board set up. As you are doubtless aware, no provision for compulsory sickness insurance was included in the Social Security Act.

MEDICAL PROVISIONS OF THE SOCIAL SECURITY ACT

While the Social Security Act does not include a system of compulsory sickness insurance, it contains a number of provisions which have a bearing on medical practice.

These provisions are essentially an effort on the part of the federal government to stimulate action in certain phases of medical care by the states and local communities through the well-known systems of grants of money. Preliminary study of the act reveals that the following health activities in Oregon may be subsidized annually in the amounts indicated:

(1) Maternity and Child Welfare (through the State Board of Health) \$30,511.87. (2) Care of Crippled Children (through state agency not designated) \$20,000. This activity involves the supplying of curative medical service and is the most likely to affect private medical practice. (3) As-

sistance in developing state and county health programs, including the training of personnel for local and state health work (through the State Board of Health and the University of Oregon Medical School). Amount of federal funds not fixed.

Plans for the carrying out of provisions of the Social Security Act are being formulated by the U. S. Public Health Service and Children's Bureau in cooperation with advisory committees on which the American Medical Association and the State and Provincial Health Authorities of North America are represented. The same type of cooperation with state and local medical societies is apparently contemplated in the application of the Act to states and counties. The Council of our Society has appointed its Executive Committee, the State Health Officer, and the Dean of the Medical School to serve as a committee in working out plans for carrying out the act in Oregon. The operation of the act will now be delayed until the next session of Congress, owing to a filibuster in the closing days of the recent session which defeated the bill appropriating funds for the administration of the Act. As soon as definite plans have been approved by the Council, full information will be supplied the officers of all competent societies.

REPEAL OF PUBLICITY REQUIREMENT FOR FEDERAL INCOME TAX RETURNS

Another subject on which your committee sought the assistance of the Oregon delegation in Congress was the repeal of the section of the Revenue Act of 1934 requiring the publicity and posting of the individual taxpayer's income. This unwarranted publicizing of the private affairs of our citizens and the many abuses which would naturally follow was fortunately eliminated by Congress so that, although slips for this purpose were required to be filled out in connection with 1934 returns, the repeal annulled their use.

REDUCTION IN FLIGHT SURGEONS ON ACTIVE STATUS

Steps were also taken by your committee, acting in conjunction with the Committee on Military Affairs, to obtain the cooperation of the Oregon delegation in eliminating from the army appropriation bill the proposal to reduce the number of flight surgeons on active status from seventy-two to five. This grave error of policy was corrected before the bill was passed.

DEBATES ON SICKNESS INSURANCE IN HIGH SCHOOLS, COLLEGES AND UNIVERSITIES

Before concluding this report, your committee desires to direct your attention to the selection for debate for 1935-1936 by the National University Extension Association Debate Committee of the proposition: "Resolved, That the several states should enact legislation providing for a system of complete medical service available to all citizens at public expense." This action means that the subject of compulsory sickness insurance will be debated by more than 100,000 students in high schools, colleges and universities throughout the United States. It is likely that a considerable amount of public interest will be stimulated in our own state, in which to date there has developed no tangible public movement for sickness insurance.

The American Medical Association has already prepared a negative argument which will be published in the annual Debate Handbook of the Extension Association. Moreover, all the pamphlets prepared by the Bureau of Medical Economics have been made available to debaters for free distribution or in library loan packages.

It is highly important that the officers of component societies and our membership generally keep closely in touch with plans for such debates in high schools and colleges in their communities and to see to it that debaters are directed to this material. The Council has already authorized the announcement of the Society headquarters as the clearing house for the distribution of the American Medical Association publications on sickness insurance.

CONCLUSIONS AND RECOMMENDATIONS

In concluding this report, your committee wishes to make several recommendations.

Your committee is impressed with the fact that a considerable amount of difficulty is created at the State Legislature by the hurried introduction by various groups of hastily drafted medical legislation which has not previously been submitted to the Council of our Society in time to

allow ample study by the proper committees and the making of such suggestions as are in the interests of scientific medicine. Outstanding examples of this practice at the 1935 session were the venereal diseases control and laboratory regulation measures introduced at the instance of the State Health Officer, and the new pharmacy code sponsored by the State Board of Pharmacy.

We are aware of the fact that we cannot prevent some groups and individuals from engaging in such practices, but we believe that state departments and private organizations which are presumed to be in liaison with our Society should be willing to consult in advance with the Council concerning proposed legislation. We therefore recommend that the Society go on record as being willing to support only such medical legislation as is submitted to the Council prior to the legislative session in ample time for study and that the Society vigorously oppose all medical legislation not so submitted.

We are deeply grateful for the splendid cooperation given our committee in safeguarding the interests of scientific medicine at the recent session of the State Legislature, by Clyde T. Hockett, J. F. Hosch, and James A. Best. The Council has already expressed its thanks to these physicians; nevertheless, we recommend that the House of Delegates and the Society assembled in annual session adopt suitable resolutions of appreciation to these physicians.

Finally, our committee believes that, in spite of the dissemination during the past year of a wider knowledge among the physicians of the state of the work of the Society in their behalf, the discussion of the matters contained in this report would be of value in this direction. We therefore recommend that each delegate be requested to read this report at the first meeting of his local society following this session.

THOMAS WYNNE WATTS, *Chairman.*

On motion duly made and seconded, it was voted that this report be accepted and referred to the Committee on Resolutions.

Report of the Medical Advisory Committee to the State Relief Committee

Your Medical Advisory Committee to the State Relief Committee submits the following report of its activities during the past year. Because the medical care of indigent is a basic problem of the organized medical profession, your committee believes that a presentation of the history of this problem in Oregon, together with a discussion of the changes effected through the creation of the system of federal, state, and county relief administrations will be valuable to our membership. A summary dealing with the operation of this newer type of plan and of the work of your committee in connection with its installation and administration will also be included.

(The traditional method of caring for indigent sick was described.)

In a few of the more populous counties, county hospitals were constructed and full-time county physicians were employed. In Portland, these facilities were supplemented by the University of Oregon Medical School Outpatient Clinic, the Visiting Nurse Association, etc., in most of which, however private physicians continued to provide professional services without remuneration.

Even when one or another of these arrangements was consummated, no one would seriously contend that the community was in actual fact providing medical care for the indigent. The medical profession of the community, and to a lesser degree, the hospitals, still continued to carry a large part of the burden which is the government's responsibility.

DEFECTS AND CRITICISMS OF THE TRADITIONAL PLAN OF CARING FOR THE INDIGENT SICK

This relatively haphazard plan of caring for the indigent sick developed many defects which led to much criticism by the medical profession.

From the standpoint of the indigent patient, two outstanding defects appeared: (1) The amount and quality of the service provided by public funds was often inadequate; and (2) the patient was denied the free choice of physician.

From the standpoint of the medical profession, the following deficiencies soon became evident: (1) The compensa-

tion paid the physicians employed was grossly inadequate and bore little relation to the demands for service; (2) the normal patient-physician relationship was not maintained; (3) the main burden of providing professional service was still carried by the private physician; (4) there was an absence of participation by the organized medical profession in the management of clinics and institutions established to serve the indigent, particularly from the standpoint of standards of eligibility to receive services which the medical profession donated.

(Different methods of caring for indigent sick now in vogue were described. The plan of the Federal Emergency Relief Administration was detailed which has been published in the A. M. A. Journal.)

THE MEDICAL RELIEF PROGRAM IN OREGON

Prior to the promulgation of Federal Rules and Regulations No. 7, our Society, anticipating that medical relief would be provided by governmental authority, requested Governor Meier to appoint a member of the Society to serve in an advisory capacity to the newly created State Relief Committee in dealing with problems of medical relief. Governor Meier granted this request and the chairman of your present committee was appointed to serve in this advisory capacity. The Council of our Society shortly afterward created the existing Medical Advisory Committee.

Contact was immediately made with the State Relief Committee and a consideration of the problem of medical relief requested. For a considerable period the State Relief Committee gave no special attention to medical relief and concentrated on the task of providing food, shelter and clothing to the unemployed. Their justification for this unwillingness to act was the fact that during 1933 the federal government was carrying almost the entire burden of relief in Oregon and that all available funds were needed for material relief. This situation was due to the absence of adequate funds for relief, the 1933 State Legislature having specified that its appropriation for this purpose was to be derived from revenue obtained from the sale of liquor and taxes on its manufacture and importation. Receipts from this source came in relatively slowly in 1933 with the result that relief funds from the state were very inadequate.

Nevertheless, your committee proceeded to draft a medical relief program in conformity to Federal Rules and Regulations No. 7. This program provided for participation by all licensed physicians who wished to do so, compensation to be on an individual fee basis with customary minimum fees, less a discount which ranged from 30 to 50 per cent. The plan also provided for free choice of physician by the relief client. This program was approved by the Council for submission to the House of Delegates at the 1933 session. The plan was approved by the House of Delegates on October 28, 1933, and the Medical Advisory Committee authorized to request the State Relief Committee to adopt it. Your committee was also authorized to act with the Executive Committee of the Council in making such minor changes in the plan as became necessary during the course of negotiations with the State Relief Committee.

This suggested program was immediately transmitted to the State Relief Committee. No action was taken by the State Relief Committee on the proposal for several months in spite of repeated efforts by your committee to obtain consideration. Finally, in March, 1934, the State Relief Committee proposed a plan providing allowances to physicians on a much lower scale than that submitted by your committee. The receipt of this proposal was reported to the Council on April 4, 1934, who voted unanimously to reject it and authorized that a reply be made to the State Relief Committee which included the declaration that "rather than allow any person or group to fix our fees for us we take the position that we will take care of our patients whether they have means to pay us or not." Protest over the attitude of the State Relief Committee was immediately made to Mr. Harry Hopkins, Director of the Federal Relief Administration at Washington, and to our Senators and Representatives in Congress.

The development of this state of affairs emphasized one of the weak points in federal, state and county relief administrations, namely, the absence of medical personnel with consequent lack of understanding of the problems of the physician. It became evident that little progress could be made in obtaining the adoption of a satisfactory program

without a representative of the medical profession on the State Relief Committee. As soon as a vacancy existed in the Committee, Governor Meier was requested to appoint a physician. This request was readily granted by the Governor, who, on June 4, 1934, appointed Robert L. Benson of Portland.

The appointment of Dr. Benson marked the turning point in our efforts to obtain the adoption of an equitable plan. Dr. Benson's influence was immediately felt and cooperative relations with the State Relief Committee were soon set up. The result was that a reasonably acceptable schedule of allowances was provided and the present medical relief program adopted on October 4, 1934. The schedule of allowances provided is as follows:

Home visits 6 a.m. to 9 p.m.	\$1.75
Home visits 6 a.m. to 9 p.m. in Portland beyond 3 mile zone from starting point	2.00
Home visits 9 p.m. to 6 a.m.	3.00
Home visits 9 p.m. to 6 a.m. in Portland beyond 3 mile zone from starting point	3.50
Mileage (one way beyond city or township limits from starting point to destination):	
Night visit (per mile)	.50
Day visit (per mile)	.25
Office visits	1.25
Obstetrical cases	20.00
Obstetrical cases in Portland beyond 3 mile zone from starting point	25.00

This program made no mention of services other than those which could be performed in the home of the patient or the office of the physician. However, in January, 1935, your committee, with the cooperation of Dr. Benson, was able to obtain a ruling that surgical and other services rendered by physicians in hospitals would be compensated, provided the cost of hospitalization was borne by the county or other local agency.

ADMINISTRATION OF THE PLAN

The plan was gradually placed in effect by the county relief committees and by the early months of 1935 was operating in the majority of counties. The detailed application of the program presented many problems to the county relief committees. These problems were passed up to the State Relief Committee which referred them to Dr. Benson, who in turn referred them to your committee. Numerous questions, such as the eligibility of osteopaths, chiropractors, naturopaths and optometrists to participate in the program; the determination of what chronic diseases might be treated; the question as to whether a given condition was "acute"; and innumerable matters of a similar nature have been adjudicated by your committee.

The promulgation of a complete table of fees was purposely avoided in order to eliminate the wide dissemination of a schedule which at some future time might be used to the disadvantage of the medical profession. The alternative understanding that was reached provided that your committee would pass upon each individual case and supply a "customary minimum fee" to which was to be applied a 50 per cent discount.

The adoption of this policy of referring to your committee all matters of interpreting the medical program and the determination of allowances to physicians has given the committee an important place in the administration of medical relief. This advantage of course involves the carrying of a large burden of correspondence and administrative detail by our small headquarters staff which otherwise would have been placed upon the State Relief Administration. However, your committee feels that the service thus rendered the medical profession and the resulting retention of a considerable degree of control over the medical program justifies the use of this method of procedure.

EXPENDITURES FOR MEDICAL RELIEF

The following tabulation indicates the expenditures for medical relief for the first seven months of 1935.

January	\$ 16,440.00
February	21,046.23
March	22,812.57
April	24,698.86
May	22,539.66
June	20,829.52

July 17,331.55

Total for seven months.....\$145,698.39

APPRAISAL OF THE MEDICAL RELIEF PROGRAM

It was not to be expected that any program of medical service provided by government would be satisfactory to the medical profession or entirely free from evils. Nevertheless, your committee is of the opinion that valuable experience in dealing with the problem of the indigent sick has been gained. The following summary of advantages and defects of the existing program is presented for the purpose of provoking discussion among the membership.

ADVANTAGES OF THE PRESENT PLAN

1. Recognition of the fact that the care of the indigent sick is primarily an obligation of the government.
2. Recognition of the fact that the medical profession should be compensated, at least in part, for professional services rendered to the indigent.
3. Recognition of the principle of the "free choice" of physician and the desirability of preserving the traditional physician-patient relationship in the care of the indigent sick.
4. Recognition of the fact that the organized medical profession, as represented by the State Medical Society and the local medical societies, should play an important part in the formulation of policy and the administration of the plan providing for the care of the indigent sick.
5. Recognition of the fact that the care of the indigent sick should be limited to physicians trained in scientific medicine, to the exclusion of cult practitioners.

DEFECTS OF THE PRESENT PLAN

1. Failure to define the functions of previously existing services provided by state or county governments in the form of clinics and salaried physicians.
2. Expansion of previously existing services provided by state or county governments through the use of federal and state funds with resultant nullification or curtailment of the advantages listed above.

The results of these defects are reflected in the relatively limited application or the complete rejection of the approved medical program in counties such as Multnomah, Marion, Lane and Jackson.

MEDICAL RELIEF IN THE IMMEDIATE FUTURE

The passage at the recently adjourned session of Congress of legislation providing for the expenditure of nearly four billion dollars on employment projects during the ensuing year under the jurisdiction of the Public Works Administration and the newly-created Works Progress Administration, indicates the adoption by the federal government of a program of employment relief and the probable ultimate abandonment of direct relief, or "the dole," of which medical care is a part. It seems likely, therefore, that federal aid to the states for direct relief will shortly be eliminated or drastically curtailed. Nevertheless, it is conceivable that it may be impossible, within the immediate future, to remove all employables from direct relief through employment made available by government or private industry.

In any event, the 1935 State Legislature appropriated to the State Relief Committee for direct relief during the ensuing biennium, the sum of \$500,000 annually. It seems probable that the federal government will make an additional amount available for this purpose. No definite plan for the future care of the indigent sick has yet been formulated at Washington. It is probable, however, that the principles set forth in Federal Rules and Regulations No. 7 will be retained and enforced as a condition for the receipt of federal relief funds for medical purposes.

THOMAS WYNNE WATTS, *Chairman.*

On motion duly made and seconded, it was voted that this report be accepted and referred to the Committee on New Business.

Dr. Watts read a telegram just received from Dr. Olin West, secretary of the American Medical Association, indicating the probable discontinuance on November 1 of federal direct relief, including medical relief.

Report of Committee on Scientific Work

The committee on scientific work has held several meetings during the past year. The chief work of the committee has been the preparation of the program for the 61st annual

session of the State Medical Society to be held at Gearhart, September 19-20-21, 1935.

The committee felt that the plan instituted at the 1934 session, to hold "general" sessions rather than divisional meetings, had been eminently successful last year and that it should be continued. We also thought it wise to keep the number of papers on the program down to a minimum.

We invited two out-of-state guest speakers each to present two papers. To keep the program well balanced, we also requested several local physicians to present papers on definite subjects. A number of other papers of unusual merit we were forced to reject in order to keep within our fixed time.

The number of scientific exhibits this year will necessarily fall below those of last year because of the absence of the excellent exhibits from Oregon State College but we feel sure that the quality of the exhibits is excellent.

Several times during the past year requests have come to the committee for essayists to appear on the programs of meetings of the component societies. The committee has been able to suggest speakers for these programs.

We have appreciated very much the splendid assistance of Mr. Clyde C. Foley, our executive secretary, in the preparation of the details of the program and scientific exhibits.

BLAIR HOLCOMB, *Chairman*.

On motion duly made and seconded, it was voted that this report be accepted and referred to the Committee on Resolutions.

EXPRESSION OF APPRECIATION OF SERVICES OF THE EXECUTIVE SECRETARY

Dr. Holcomb, secretary, stated that he desired to take this opportunity to express his appreciation of the work of the executive secretary. Dr. Webster, president, joined in expressing similar appreciation.

Report of Committee on Clinic and Institutional Medical Care

(This report, omitted on account of lack of space, is on file in the secretary's office.)

On motion duly made and seconded, it was voted that this report be accepted and referred to the Committee on New Business.

Report of Committee on Military Affairs

(This report, omitted on account of lack of space, is on file in secretary's office.)

On motion duly made and seconded, it was voted that this report be accepted and referred to the Committee on New Business.

Report of Committee on Conservation of Vision and Hearing

Your committee has undertaken no new projects during the past year. It is felt that the publication of a pamphlet relative to the conservation of vision and hearing, such as was published and distributed by the committee in 1934 should be continued, but lack of funds and the unwillingness of the committee to again call on the Oregon Academy of Ophthalmology and Oto-Laryngology to defray the expenses of such a publication, has prevented this being done.

It is recommended that future committees establish a liaison with the National Society for the Prevention of Blindness. Through this organization literature relative to the conservation of vision could be obtained and distributed at a nominal cost.

A. B. DYKMAN, *Chairman*.

On motion duly made and seconded, it was voted that this report be accepted and referred to the Committee on New Business.

Report of Committee on Veterans Affairs

(This report, omitted on account of lack of space, is on file in the secretary's office.)

On motion duly made and seconded, it was voted that this report be accepted and referred to the Committee on New Business.

Report of Committee on Medical Defense

Your Committee on Medical Defense has continued during the past year to render consultation and planning service to members who have been sued for alleged malpractice. The following summary provides information concerning the number and outcome of claims and suits against our membership during the period October 1, 1934 to September 1, 1935.

(Claims, no suit filed.)

Pending at beginning of period.....	4
Filed during period.....	16
Total.....	20
Closed without payment.....	7
Settled for nominal amount.....	5
Pending at close of period.....	8
Total.....	20

Suits in Lower Courts

Pending at beginning of period.....	21
Filed during period.....	16
Total.....	37
Non-suits for physician-defendant.....	2
Jury verdicts for physician-defendant.....	5
Jury verdict for plaintiff (appealed).....	2
Settled out of court for nominal amounts.....	5
Pending at close of period.....	23
Total.....	37

Suits in Supreme Court

Pending at beginning of period.....	1
Appealed during period by physician-defendant.....	2
Total.....	3
Jury verdicts for plaintiff affirmed.....	3

While this tabulation indicates that a considerable number of claims and suits are still being filed, there was a substantial decrease in the number of new suits from 21 during the previous annual period to 16 for the past year.

Another hopeful sign is the fact that the number of claims and suits filed in certain towns of the state where a relatively large number of actions have been brought in recent years has shown a marked decline during the past year.

Your committee reiterates that the control of the malpractice claim evil lies largely with the physicians in each local community. It is well established that the vast majority of these alleged claims are without foundation and have their inception in some careless remark made by a brother physician.

FRANK E. BUTLER, *Chairman*.

On motion duly made and seconded, it was voted that this report be accepted and referred to the Committee on New Business.

Report of the Committee on Publication

There has been no meeting of the trustees of Northwest Medicine Publishing Association since the annual report a year ago. The annual meeting for this year will be held at Gearhart on September 20.

The financial affairs of NORTHWEST MEDICINE are in very good condition. The journal has continued to uphold its high standards under our able editor, Clarence A. Smith.

During the past year a section has been added, devoted to the three societies of Oregon, Washington and Idaho. Through this space the societies have carried to their members messages of importance, and the members have been made cognizant of important actions which have been taken by their various committees, including the executive of their respective societies. This department has proved to be very valuable. All three societies are now paying two dollars per member per year for NORTHWEST MEDICINE.

A. G. BETTMAN, *Chairman*.

On motion duly made and seconded, it was voted that this report be accepted and referred to the Committee on New Business.

Dr. Bettman stated that the proposed meeting of the trustees of the Northwest Medical Publishing Association,

referred to in the foregoing report, would not be held owing to the absence of a quorum. Dr. Bettman introduced Clarence A. Smith of Seattle, editor of *NORTHWEST MEDICINE*.

Dr. Dillehunt requested the privilege of the floor and the request was granted. He discussed the plan under which relief funds had been supplied to the University of Oregon Medical Outpatient Clinic for the care of the indigent load in excess of the normal load utilized for teaching purposes and the criticism which had developed of this plan. He stated that it was the desire of the Medical School to pursue a course which at all times conformed to the policies of organized medicine. He discussed numerous medical problems which had been dealt with in the state university, college, and normal schools as a part of his responsibility as Interinstitutional Director and Dean of Medicine for the entire State System of Higher Education. He stated that in his opinion there was a lack of proper liaison between the Medical School and the Society. He suggested that the Medical School be represented at all meetings of the Council and that the Council should designate a representative to attend all faculty meetings and participate in the formulation of policies for the School.

Dr. Webster stated that he desired to correct the impression that the Society did not have bodies before which the Dean could appear to discuss problems affecting the medical profession. He stated that the Council and its Executive Committee met frequently and were always glad to have the Dean or anyone else who had any matter of importance to the medical profession appear before them.

Announcements

Dr. Sweeney called attention to the meetings of the Woman's Auxiliary at The Ocean House and invited the members of the Society to visit the exhibits prepared by the Auxiliary.

Dr. Kleger called attention to the talk by Dr. Webster at the joint luncheon meeting of the Astoria service clubs and stated that this talk would be broadcast over station KFJI. He also announced that the cocktail hour for the day would extend from 3 p.m. to 7 p.m. at which latter hour the annual banquet would begin.

Dr. Kleger announced that the golf tournament would be played on the Gearhart course on Saturday afternoon and that it would be followed by a dinner dance. He also stated that visiting physicians and their wives would be escorted through the salmon canneries at Astoria and on other sight-seeing trips, if they so desired.

At 9:00 a.m., on motion duly made and seconded, it was voted to adjourn until 7:30 a.m., on Saturday.

THIRD SESSION

Saturday, September 31

The House of Delegates was called to order by President A. M. Webster at 7:30 a.m., at the Hotel Gearhart.

On roll-call, the following members of the Council were present:

A. M. Webster, president; W. T. Johnson, past president; G. A. Massey, president-elect; K. H. Martzloff, first vice-president; W. J. Weese, second vice-president; O. F. Akin, treasurer; Councilors T. Tharaldsen, T. W. Watts, C. E. Sears, F. E. Fowler, C. T. Sweeney, E. D. Lamb, J. P. Brennan, H. A. Cary; E. L. Zimmerman, alternate delegate to the American Medical Association.

The following delegates were present: J. C. Vandever of Bend, Central Oregon Medical Society; L. S. Kent of Eugene and H. R. Kauffman of Toledo, Central Willamette Medical Society; S. A. Kleger of Astoria, Clatsop County Medical Society; R. G. MacDonald of St. Helens, Columbia

County Medical Society; J. J. D. Haun of La Grande, Eastern Oregon District Medical Society; J. C. Hayes of Medford, Jackson County Medical Society; E. D. Johnson of Klamath Falls, Klamath and Lake Medical Society; C. E. Hunt and G. A. Hurley of Eugene, Lane County Medical Society; J. A. Reuter of The Dalles, Mid-Columbia Medical Society; D. C. Burkes, L. A. Goldsmith, W. F. Hollenbeck, B. R. Brooks, L. T. Jones, B. A. Van Loan, J. R. Montague, G. W. Millett, C. P. Wilson, R. M. Dodson, S. H. Sheldon, A. G. Bettman, A. C. Jones, F. F. South, J. A. Pettit, J. H. Fitzgibbon, of Portland, Multnomah County Medical Society; W. W. Baum of Salem and G. B. Smith of Woodburn, Polk-Yamhill-Marion Medical Society; H. A. Woods of Ashland, Southern Oregon Medical Society; W. K. Ross of La Grande, Union County Medical Society.

A considerable number of members of the Society were also present.

Clarence A. Smith of Seattle, editor of *NORTHWEST MEDICINE*, was also present.

The executive secretary was also present.

Report of the Committee on State Industrial Affairs

Your committee submits the following report dealing with its activities during the past year.

Owing to the splendid results obtained in behalf of the medical profession of the state by the committee of the preceding year, our work has not been arduous. As will be recalled, your 1934 committee acting for the Society and with the approval of the Council, entered into an agreement with the State Industrial Accident Commission. This agreement, which was announced to the membership on June 27, 1934, contained the following provisions:

1. Until July 1, 1934, physicians to be paid according to the existing fee schedule of the commission less a 12½ per cent discount.

2. On July 1, 1934, the Commission to discontinue publication of a fee schedule and the Oregon State Medical Society to publish and circulate among the medical profession its own minimum industrial fee schedule.

3. On or about October 1, 1934, the Commission to prepare data showing the experience of the previous three months' period of operation under this plan and to meet with the Committee on State Industrial Affairs of the Oregon State Medical Society for the purpose of reviewing results and reaching a more permanent agreement based on the findings derived from this three months experience.

4. The Oregon State Medical Society to investigate any irregular practices and excessive bills by physicians and aggressively discipline any member found to be engaging in such practices.

5. The Oregon State Medical Society reaffirmed its approval of the Liaison Committee to consult with the Commission from time to time concerning padded bills and other irregularities by physicians and, when requested, to submit a list of members from which the Commission might select such Liaison Committee.

The basic feature of this agreement was the recognition of the principle that the fixing of compensation for medical and surgical work is a function of the medical profession and not of nonprofessional agencies. This is a principle for which our Society is striving to obtain recognition in all relations with governmental agencies administering systems of medical care.

Under this agreement the level of physicians' compensation was raised approximately to that prevailing prior to the first reduction in fees made by the State Industrial Accident Commission in 1931. The Commission was most cooperative in working out this new plan. In accepting our official schedule as a base schedule, the Commission indicated its desire to bring up the compensation of physicians to a reasonable level. Of vital importance, also, was the fact that by concluding this agreement, we were able to avoid the adoption by the Commission of an arbitrary schedule of its own which would affect not only industrial accident work, but would be used to beat down prevailing fees in regular private practice.

In accordance with the third provision of this agreement, your committee last fall requested the Commission to meet with us to discuss medical aid costs under the new plan with a view to a possible reduction in the prevailing discount of 25 per cent. The Commission stated that the period of

operation under the changed agreement had not been sufficiently long to produce data which could be safely used to determine future policy in connection with the compensation of physicians. Your committee has made several similar requests for a review of experience under the new arrangement but, owing to the shift of party control in the state administration on January 1, 1935, and the consequent possibility of a change in the composition of its membership, the Commission has until recently preferred to avoid making any changes in medical aid policy.

However, on September 13, one week ago, your committee held a conference of several hours duration which was attended by Mr. Otto Hartwig, Commission member representing labor, and Mr. Ralph E. Jackson, claim agent. Of your committee, Drs. Richard F. Berg, B. A. Van Loan, E. L. Zimmerman, and the chairman were present. Dr. Thompson Coberth was unable to attend.

On the whole, this conference was marked by the same spirit of friendly cooperation which has characterized our relations with the Commission during the past two years. The following subjects were discussed:

1. The financial condition of the State Industrial Accident Fund. The representatives of the Commission agreed that the Fund was in an improved state. They stated that in 1933 the financial condition was dangerous and the trend such that, if left uncorrected, it would have led to probable insolvency. They indicated that this tendency had been checked and that more than \$1,000,000 of the deficit cleared up. They stated that this improvement was due to: (a) the installation of the experience rating plan under which the careful employer is rewarded by a discount in rates and the careless employer penalized by an additional percentage of the stated rates; and (b) the stimulation of employment, both public and private, by the expenditure of large amount of public funds on various projects.

2. The desirability of reviewing medical aid costs under the plan in effect since July 1, 1934, and the possibility of reducing the discounts of 25 per cent now being applied to the Society's Minimum Industrial Fee Schedule.

The representatives of the Commission stated that the protection of the Workmen's Compensation Act had been extend to workers employed on SERA projects, although legally such workers were not employees, but wards of the various governmental units. They stated that, while it had been desirable to provide such workers with this protection, an extra burden had been thrown upon the State Industrial Accident Fund by reason of the fact that many of these workers were below the physical standard ordinarily acceptable to private industry. They indicated that the Commission would be very well satisfied if the books could be closed on this class of coverage without the necessity of their reaching into the contributions derived from normal employment. The representatives of the Commission pointed out that the medical profession had benefited by this policy of bringing SERA workers under the Act, because otherwise physicians would have treated these workers as charity patients or on the basis of allowances much below the compensation paid the doctors from the State Industrial Accident Fund. They expressed the opinion that a comparison of medical aid costs during this period of emergency relief employment as against those previously prevailing would not reflect a lower medical cost per claim upon which might be based a reduction in the existing discount of 25 per cent.

3. A brief consideration of minor amendments in the Society's Minimum Industrial Fee Schedule covering roentgenograms and of the present policy of the Commission in the Portland area, under which roentgenograms may only be taken by attending physicians who have their own equipment, thus eliminating from participation the physician-roentgenologist who devotes full time to roentgen work. It was concluded that these matters be discussed fully in a conference of two representatives of the Commission and three physician roentgenologists.

4. The desirability of providing physicians with instruction in the use of the forms supplied by the Commission and in the preparation of reports, including those in infected and complicated cases when the customary flat fee does not provide adequate remuneration.

In addition to these activities in connection with state

industrial accident work, your committee has had before it the question of fees for professional services rendered by physicians to private insurance companies. There has been some effort made by the adjusters for the companies to demand that the compensation paid physicians for such work be in accordance with the Society's agreement with the State Industrial Accident Commission, i. e., on the basis of our Minimum Industrial Fee Schedule, less 85 per cent. Your chairman attended a meeting of the adjusters association at which he pointed out that the printed schedule is the minimum schedule and that the discount temporarily allowed the Commission is granted as a contribution of the medical profession to a nonprofit, humanitarian activity of the state government. Your chairman further explained that this principle did not obtain in the case of commercial insurance companies which should expect to pay the full minimum fee. It is the impression of your committee that no determined effort is being made by the insurance companies, particularly the larger carriers, to force the issue in this matter.

Your committee recommends that space be set aside in the Society's bulletin, *The Medical Reporter*, to be devoted to questions and answers regarding matters of policy and details of handling cases for the State Industrial Accident Commission.

T. THARALDSEN, *Chairman*.

On motion duly made and seconded, it was voted that this report be accepted and that the recommendations contained therein be adopted.

Report of the Committee on the Revision of Constitution and By-Laws

Your Committee on the Revision of Constitution and By-Laws has given consideration to two amendments to the By-Laws submitted by the Council and set forth in the report of the Secretary.

We recommend the adoption of these proposed amendments which are as follows:

To amend Section 2 of Chapter VIII so as to read as follows:

Section 2. The Committee on Scientific Work shall consist of three members of whom the Secretary shall be Chairman. The remaining two members shall be appointed annually by the President. This Committee shall determine the character and scope of the scientific proceedings of the Society for each session, subject to the instructions of the House of Delegates or the Council. Thirty days previous to each annual session it shall prepare and issue a program announcing the order in which papers and discussions shall be presented.

On motion duly made and seconded, it was voted that this amendment to the By-Laws be adopted.

To amend Section 6 of Chapter I so as to read as follows:

Section 6. Physicians who have been active members of the Society in good standing for twenty years shall be eligible to life membership. They shall be entitled to all privileges of active membership so far as voting and holding office are concerned and shall pay dues equivalent to the annual subscription charge of the official journal. On written application such membership may be granted by action of the Council.

On motion duly made and seconded, it was voted that this amendment to the By-Laws be adopted.

On motion duly made and seconded, it was voted that the By-Laws as amended be adopted as a whole.

Report of Special Committee on W P A Medical Service Project of the University of Oregon Medical School

Your committee was appointed by authority of the Council and given the following assignment by the President:

1. To investigate the current news report that \$74,000 has been allotted to the Medical School to employ physicians, technicians, clerical help, etc., to enlarge the clinical facilities of the Medical School Outpatient Clinic to render medical care to the indigent;
2. To confer with Dean Dillehunt and ask him to ex-

plain why he has entered into this arrangement without consulting the medical organization;

3. To confer with the County Relief Committee if it seems best and get their reasons for entering into this arrangement;

4. To seek to have this arrangement revoked and turned back to the relief committee with the understanding that they will grant us a hearing to enable us to show the improper and unfair character of this arrangement or contract.

Your committee has held several meetings and has conferred with Dr. Dillehunt and with Dr. Harry Cliff, Multnomah County Physician, for the purpose of obtaining full information concerning the WPA medical service project. The principal facts as we found them are as follows:

1. The Medical School, through the State Board of Higher Education, sponsored and applied for an allotment of Works Progress Administration funds which has been approved in the sum of approximately \$74,000. This sum is being supplemented by an amount of several thousand dollars from the regular state budget for the Outpatient Clinic; inasmuch as the personnel to be employed is limited by the physical facilities of the clinic, it is likely that only 50 per cent of the allotted sum, or approximately \$37,000, will be expended during the one-year period of the project;

2. This project is essentially a continuance of a similar project which has been carried on since August, 1934, principally under an allotment of funds from the State Emergency Relief Administration. This agency no longer administers work relief projects which, under recent federal regulations, have been transferred to the newly created Works Progress Administration.

3. One of the purposes of the project is to provide employment for technicians, nurses, clerks, janitors, elevator operators and other types of workers; the other purpose is to provide facilities for the huge load of the indigent sick in excess of the normal load of 300 patients per day who are utilized for teaching purposes. This excess load is as great as the normal load.

4. Application has been made to the Works Progress Administration to make an exception to the regulations which require physicians to place themselves on the relief rolls in order to participate in the project and to work on a wage basis with compensation at the prevailing rate of 96 cents per hour which has been fixed for skilled workers, including professional men. The proposal submitted by the Dean of the Medical School is that physicians be considered as supervisors of the project and paid on a basis unrelated to the scale of relief wages and with due consideration to the value of their services. It is anticipated that compensation of approximately \$125 per month for a two-hour daily assignment will be provided for some 27 or more physicians rendering service under the project.

Based on its investigations, your committee believes the following conclusions are justified:

1. The creation of a Works Progress Administration Project for the care of the indigent sick in which the entire medical profession might participate under the sponsorship of the Oregon State Medical Society or the Multnomah County Medical Society would be impossible, for the reason that all such projects must be sponsored by some state or local governmental agency; moreover, the participating physicians might likely be required to place themselves, at least technically, on the relief rolls and accept compensation on a wage basis. This latter requirement might establish a precedent which would be exceedingly detrimental to the welfare of the medical profession in the future.

2. The motives of the Dean of the University of Oregon Medical School in sponsoring the project under consideration, at the request of officials of the city and county were not of a character intended to work an injustice on the private physician but arose out of necessity of obtaining funds from some source to enable the clinic to carry the existing excess load of patients; however, one result of the installation of this project apparently has been to leave the impression with the Multnomah County Relief Committee that its operation, together with the facilities for office and home care supplied by the Multnomah County physician, will provide adequate care to the indigent sick. Moreover, the expansion of the clinic's facilities over and above what

is necessary to care for the normal load of the indigent sick in the absence of a dividing line between the unemployable and employable groups is in contravention of the intent of the state relief program as promulgated a year ago. The effect, therefore, of this project, irrespective of the motives of the Dean, is to defeat the adoption by the Multnomah County Relief Committee of the medical relief program approved by the State Relief Committee and operating in the majority of other counties, under which the entire medical profession may participate and receive nominal allowances for services rendered to the employable unemployed.

On the basis of these findings, your committee makes the following recommendations:

1. That a committee, of which the Dean of the Medical School and the Multnomah County physician shall be members, be appointed;

2. That this committee be authorized to confer with the Multnomah County Relief Committee and to seek to obtain recognition of the following propositions: (a) that the facilities provided by this project and by the Multnomah County physician do not meet the entire problem of the indigent sick; (b) that these facilities should be limited to the care of the unemployable group; (c) that the medical relief program approved by the State Relief Committee should be installed in Multnomah County for the care of the employable group in their homes and in the offices of such physicians as desire to participate in the plan; (d) that the Multnomah County Relief Committee, acting in cooperation with the Medical Advisory Committee of the Multnomah County Medical Society, retain the power to supervise the plan and to correct abuses.

This proposed committee might well also point out to the Multnomah County Relief Committee that the King County Relief Committee at Seattle, which has a similar situation from the standpoint of existing clinical facilities, has recently adopted a plan similar to that outlined in the several propositions enumerated above.

ROBERT L. BENSON, *Chairman.*

On motion duly made and seconded, it was voted that this report be accepted and that the recommendations contained therein be adopted.

The medical relief situation in Multnomah County was discussed briefly by Dr. Benson, who stated that nothing but blame attached to the Multnomah County Relief Committee for their failure to adopt some modification of the medical relief program approved by the State Relief Committee and that steps should be taken to bring pressure on this committee to do so.

Clarence A. Smith of Seattle outlined the new plan for the care of the indigent sick which had been worked out by the Washington State Medical Association and the Washington Department of Public Welfare.

There was discussion concerning the size and personnel of the committee to be appointed to deal with the Multnomah County relief situation, but it was concluded to leave these decisions to the discretion of the Council.

Report of Committee on New Business

Your Committee on New Business, to which was referred numerous reports of officers and committees, as well as other matters, submits the following report.

Your committee is impressed by the excellent reports submitted by your officers and committees and is of the opinion that much of the subject matter of these reports should be laid before the various component societies at their first fall meeting. We would strongly recommend that delegates make every effort to discharge their function of informing their respective societies concerning the activities of the State Society as set forth in these reports as well as in the various actions of the House of Delegates.

Your committee recommends that the suggestion of the Committee on Clinic and Institutional Medical Care that each component society establish an active committee to cover this field within their own jurisdiction and to act in liaison with the state committee be adopted.

Your committee has carefully considered the communication received from the Chairman of First Aid and Life Saving, Multnomah County Chapter, American Red Cross, concerning a statewide campaign of first aid projects which conflict with those of the American Red Cross and do not meet with its approval, and in which equipment not scientifically accepted is being employed. We feel that this subject is of such importance that hasty action is undesirable. Your committee therefore recommends that the matter be referred to the Council for further study and action.

While your committee has had referred to it no communication inviting the Society to any particular city for the 1936 session, we report the following for the reason that this committee ordinarily makes a recommendation on this subject. There appears to be some opinion among the membership that next year's session should be held in some city east of the mountains. Your committee recommends that this information be passed to the Council and that the Council be authorized to select the meeting place and dates of the 1936 session.

CHARLES E. SEARS, *Chairman*.

On motion duly made and seconded, it was voted that this report be accepted and that the recommendations contained therein be adopted.

Report of Committee on Resolutions

Your committee recommends the adoption of the following resolutions:

1. *Resolved*, That Oregon State Medical Society express its sincere appreciation of the earnest efforts and effective service rendered the medical profession of the state by A. M. Webster, our retiring president.

2. *Resolved*, That Oregon State Medical Society gratefully acknowledge its great debt to the Committee on Public Policy for its excellent work in organizing and directing the successful campaign against the Healing Arts Constitutional Amendment and for its splendid efforts in dealing with medical legislation before the 1935 session of the State Legislature.

3. *Resolved*, That Oregon State Medical Society express its appreciation to James A. Best, C. T. Hockett, and J. F. Hosch, members of the 1935 State Legislature, for their exceptional spirit of cooperation with our Society in safeguarding the interests of scientific medicine and the public health.

4. *Resolved*, That Oregon State Medical Society express its gratitude to the Woman's Auxiliary for their valiant efforts in combatting the Healing Arts Constitutional Amendment and for many other valuable services rendered the cause of scientific medicine during the past year.

5. *Resolved*, That Oregon State Medical Society express its thanks to Ralph A. Fenton for his effective service as Delegate to the American Medical Association and extend its congratulations for the high honor bestowed upon him by his recent election to the Board of Trustees of the Association.

6. *Resolved*, That Oregon State Medical Society acknowledge the valuable service rendered to the medical profession of Oregon and the Pacific Coast by Joseph A. Pettit during his long term of service as a member of the Board of Trustees of the American Medical Association.

7. *Resolved*, That Oregon State Medical Society express its appreciation to our guest speakers, Hans Lisser and Hubbard T. Buckner, for their splendid contributions to our scientific program.

8. *Resolved*, That Oregon State Medical Society express its thanks to the Secretary and the Committee on Scientific Work for their efforts in providing the usually valuable scientific program and exhibits for the session.

9. *Resolved*, That Oregon State Medical Society acknowledge the interest and work of our member essayists and exhibitors who were responsible for the valuable scientific papers and exhibits presented at the session.

10. *Resolved*, That Oregon State Medical Society express its deep appreciation to Clatsop County Medical Society and its Committee on Arrangements and Woman's Auxiliary for the splendid arrangements made for the enjoyment and comfort of our membership; to the management and employees of Hotel Gearhart and Ocean House, to Astoria

Chamber of Commerce, to the Rotary and Kiwanis Clubs of Astoria, to station KFJI, and to the Astoria newspapers for their splendid cooperation and generous hospitality during the session.

11. *Resolved*, That Oregon State Medical Society urgently request the hospitals of the state to adopt a policy under which special rates below the established charges to private patients are not given to commercial organizations; and further that the Society request the hospitals to make membership in the local medical society a requirement for staff membership.

JOHN H. FITZGIBBON, *Chairman*.

On motion duly made and seconded, it was voted that this report be accepted and that the recommendations contained therein be adopted.

Invitations for 1936 Session

President Webster announced that delegates might now take the opportunity to present invitations for the 1936 session.

J. A. Reuter of The Dalles, delegate from Mid-Columbia Medical Society, presented the invitation of his society and the medical profession of The Dalles to hold the next annual meeting in that city.

W. W. Baum of Salem, delegate from Polk-Yamhill-Marion Medical Society, stated that his home city would like to have the annual meeting within the next few years and would press the invitation more vigorously at the next annual session.

On motion duly made and seconded, it was voted that these invitations be referred to the Council.

Report of Committee on Nominations

C. E. Sears, chairman of the Committee on Nominations, presented the following recommendations of the committee:

President-elect.....	Thomas Wynne Watts, Portland
First Vice-President.....	W. J. Weese, Ontario
Second Vice-President.....	O. C. Hagmeier, Astoria
Third Vice-President.....	J. C. Vandever, Bend
Secretary.....	Morris L. Bridgeman, Portland
Treasurer.....	Otis F. Akin, Portland

Delegate to the American Medical Association
John H. Fitzgibbon, Portland

Alternate Delegate to the American Medical Association
J. Guy Strohm, Portland

Councilors for three-year term ending in 1938:
First District.....Blair Holcomb, Portland
Third District.....Charles E. Hunt, Eugene
Fifth District.....E. D. Lamb, Klamath Falls

On motion duly made and seconded, it was voted that this report be accepted for submission to the Society.

President Webster called attention to the fact that the House was required to elect a member of the Committee on Publication for the three-year term ending in 1938. Karl H. Martzloff of Portland was nominated. On motion duly made and seconded, it was voted that the nominations be closed, and the Secretary instructed to cast an unanimous ballot for Dr. Martzloff, who was thereupon declared elected.

President Webster expressed his thanks to the House of Delegates, the Council and the committees for their splendid cooperation during the past year.

A rising vote of thanks was given President Webster for his earnest efforts in behalf of the Society.

At 9:00 a.m., the House adjourned sine die.

GENERAL BUSINESS SESSION OF THE SOCIETY

Saturday, September 21

The business session of the Society was called to order by President A. M. Webster at 9:30 a.m., in the auditorium of Hotel Gearhart.

Report of the House of Delegates

In the absence of Blair Holcomb, Secretary, the executive secretary presented the following report of the actions of the House of Delegates.

GENERAL ACTIONS

1. Approved the recommendation of the Committee on State Industrial Affairs that space be set aside in the Society's bulletin, *The Medical Reporter*, to be devoted to questions and answers regarding matters of policy and details of handling cases of the State Industrial Accident Commission.

2. Approved the recommendation of the Special Committee on the WPA Medical Service Project at the University of Oregon Medical School that a committee, of which the Dean of the Medical School and the Multnomah County Physician shall be members, be appointed to confer with Multnomah County Relief Committee with the object of obtaining their adoption of the approved medical relief program of the State Relief Committee.

3. Approved the recommendation of the Committee on New Business that delegates make every effort to discharge their function of informing their respective societies concerning the activities of the state society as set forth in the reports of officers and committees and the actions of the House of Delegates.

4. Approved the recommendation of the Committee on Clinic and Institutional Medical Care that each component society establish an active committee to cover this field within their own jurisdiction and to act in liaison with the state committee.

5. Referred to the Council for study and action the statewide campaign of first aid projects which conflict with those of the American Red Cross, and in which equipment not scientifically accepted is being employed.

6. Referred to the Council the selection of the meeting place and dates of the 1936 session.

RESOLUTIONS ADOPTED

Eleven resolutions were read which had been adopted by the House of Delegates. (These are published on page of this issue.)

ELECTIONS BY THE HOUSE OF DELEGATES

Member of Committee on Publication for three-year term ending in 1938, Karl H. Martzloff, Portland.

AMENDMENTS TO THE BY-LAWS.

Two amendments to the By-Laws which had been adopted by the House of Delegates were read. (These are published on page of this issue.)

BLAIR HOLCOMB, *Secretary*.

On motion duly made and seconded, it was voted that this report be accepted and the actions of the House of Delegates contained therein be approved.

ELECTION OF OFFICERS

The recommendations of the House of Delegates for the various offices of the Society were read as appears on page of this issue.

President Webster called for further nominations for each of the above offices. None being made, on motion duly made and seconded, it was voted that the rules be suspended and that the President be instructed to cast an unanimous ballot for each nominee as presented in the report. Then each was declared elected. On the election of Thomas Wynne Watts of Portland as president-elect, President Webster called for nominations for the office of Councilor for the First District to fill the unexpired term of Dr. Watts ending in 1937. Karl H. Martzloff of Portland was nominated. On motion duly made and seconded, it was voted that the nominations be closed, the rules be suspended, and the President be instructed to cast an unanimous ballot for Dr. Martzloff, who was thereupon declared elected.

E. D. Lamb of Klamath Falls called attention to the fact that the House of Delegates had not acted on the recommendation of the retiring delegate to the American Medical Association that the expenses of the delegate be hereafter paid by the Society. On motion duly made and seconded, it was voted that the recommendation be made to the Council that the expenses of the delegate to the American Medical Association incurred in the discharge of his duties be hereafter paid by the Society.

Report of Committee on Honorary Membership

Your Committee on Honorary Membership recommends the election of A. E. Mackay of Portland to honorary membership in the Oregon State Medical Society.

THEODORE W. ADAMS, *Chairman*.

On motion duly made and seconded, it was voted that this report be accepted and that Dr. Mackay be elected to honorary membership.

Report of Committee on Necrology

Our comrades have gone. They came and mingled with us a little while and then passed on. But as we reckon time it was in years or years and years, with some even years beyond the allotted days of life. Each had a mission to perform, entrusted according to the might, that it may be wielded in behalf of human welfare needs. They wooed the Goddess Hygiene that she might wave her wand over our fair land and clear its horizon of what brings distress and death. These memories are within us, sacredly stored, for the character is left behind, that which is not balanced by a weight of gold nor by any human device other than to each of us a guide in our walk of life.

Ralph C. Walker, died October 1, 1934.

*Alvin W. Baird, of Portland, died October 10, 1934.

*Philo E. Jones, of Portland, died November 24, 1934.

Hugh D. Logan, of Seaside, died November 30, 1934.

*William Kuykendall, of Eugene, died December 7, 1934.

Joseph C. Smith, of Grants Pass, died December 9, 1934.

Frank E. Smith, of Portland, died December 30, 1934.

Barney Ferrell, of Bend, died January 15, 1935.

*Edmund J. Labbe, of Portland, died February 20, 1935.

James J. Story, of Lake Grove, died March 15, 1935.

*Mark T. Phy, of La Grande, died March 29, 1935.

Frank M. Taylor, of Portland, died April 1, 1935.

James Phillippe Tamiesie, Portland, died April 29, 1935.

*J. Earl Else, of Portland, died May 3, 1935.

Earle S. Prindle, of Portland, died May 26, 1935.

Myra Brown Tynan, of Portland, died June 20, 1935.

*S. E. Josephi, of Portland, died August 18, 1935.

H. M. Shaw, of Ashland, died September 12, 1935.

William P. Chisholm, Gold Hill, died September 13, 1935.

*Member of Oregon State Medical Society.

Induction of Incoming President

Retiring President A. M. Webster spoke briefly, expressing his thanks for the splendid cooperation accorded him in carrying on the affairs of the Society by the Council and its Executive Committee as well as the committee chairmen and members. He stated that a greater degree of harmony prevailed in the Society than in any medical organization with which he was acquainted. In closing, Dr. Webster asked for similar support for the incoming president, G. A. Massey.

Dr. Webster then announced that his last duty was to assist in installing the new president. Dr. Massey was escorted to the chair. Dr. Webster expressed his best wishes and turned over his duties as presiding officer.

Dr. Massey in a brief statement pledged his best efforts in behalf of the Society and requested the cooperation of the membership.

The business session of the Society was declared adjourned at 10:00 a.m.

WASHINGTON**KING COUNTY MEDICAL SOCIETY**

Pres., R. L. Zech; Secty., F. H. Douglass

King County Medical Society held a regular monthly meeting in the Auditorium of Medical-Dental Building, Seattle, November 4, President R. L. Zech presiding. Minutes of last meeting were read and approved.

Walter Kelton presented his improved clavicle crutch splint, mentioning the original device introduced eighteen years ago. After describing its construction, he summarized its effectiveness as embodying comfort, practically automatic reduction, no guess work as to its permanence, free use of the arm, simplicity. It was discussed by H. J. Davidson, J. F. LeCocq and A. R. Rickards, all of whom stated that they had used the splint with more satisfaction than is furnished by any other device.

Souren Tashian read a paper, "Symposium on Anorectal Surgery." He said that in proctology accurate diagnosis can be established and uniformly good final results obtained. He illustrated therapeutic measures and surgical procedures with lantern slides and described instruments necessary in this class of work.

D. G. Leavitt read a paper, "Synovectomy of the Knee Joints," presenting a patient to illustrate the operation. The woman had been disabled from atrophic arthritis for seven years, involving both knees, elbow and finger joints. Each knee joint was operated upon, the technical procedure being described. After eight months of continued improvement the patient has full range of motion in both joints.

SNOHOMISH COUNTY MEDICAL SOCIETY

Pres., A. H. Gunderson; Secty., A. H. Van Buskirk

Snohomish County Medical Society held a meeting at Everett, November 7, at the Monte Cristo Hotel. The program included an address by D. F. Bice of Yakima, president of the Washington State Medical Association, who discussed "Wrongs Done to the Medical Profession and the Public by Socialized Medicine." Frank J. Clancy of Seattle, chairman of the state association Public Relations Committee, spoke on the same subject. His address was supplemented by the electrical transcription of "Highlights of Medicine," one of the radio broadcastings which he has recently presented to the public. The following officers

were elected for the ensuing year: President, O. R. Allen of Lake Stevens; vice-president, L. J. Ferrell of Everett; secretary-treasurer, E. J. Van Buskirk of Marysville; C. L. Hoeffler of Everett, delegate to the state medical association meeting; A. P. Duryea of Everett, alternate delegate; W. D. Smith, board of censors.

WALLA WALLA VALLEY MEDICAL SOCIETY

Pres., J. C. Lyman; Secty., C. J. Johannesson

The regular monthly meeting of Walla Walla Valley Medical Society was held November 14 at Marcus Whitman Hotel, Walla Walla. The meeting was preceded by dinner, forty-five being present, including members from Pasco and Kennewick, and Drs. Brennan and McBee from Pendleton, Ore.

President John C. Lyman presided. Delmar F. Bice, president of Washington State Medical Association, and Frank J. Clancy of Seattle, chairman of the Executive Committee of the Public Health League, were the speakers. Dr. Bice delivered a most enlightening and valuable talk about socialized medicine. For the state association he featured: (1) a defense fund promoted and completed to combat socialized medicine, and to educate the public as to what the doctors are doing, (2) cooperative union between component societies of the state as the Medical Service Corporations, (3) political situations, legislations, etc., (4) the state association to formulate its own defense insurance organization to be underwritten by an old-line insurance company.

Dr. Clancy emphasized the enormous amount of charity work performed by the medical profession, giving authentic data and statistics, as well as explaining the radio talks he is preparing, dramatizing the history of medicine.

It was voted to change Constitution Article No. 8 by electing a Board of Trustees instead of Board of Censors, the Board of Trustees to be composed of the president, vice-president, secretary and two members elected by the society. F. C. Robinson and R. W. Smith were nominated and elected as the two additional members of the Board of Trustees.

The next meeting will be held December 12 at Grand Hotel with Richard B. Dillehunt, Dean of the Medical School of University of Oregon, as speaker of the evening.

STATE DEPARTMENTS**OREGON****OREGON COUNCIL NOTES**

Portland, Ore., Nov. 25, 1935.

The November meeting of the Council of the Oregon State Medical Society was held at Eugene, November 9. A large majority of the members were present, representing all parts of the state. Many matters of considerable importance were considered and acted upon.

The Council voted favorably to the general type of legislation embodied in the amendment to the Sterilization Law proposed by the State Board of Health. On account of the fact that the members were not conversant with the matter previous to its presentation at the meeting, it was voted that they do not endorse formally the proposed amendment. It was the feeling of the members of the Council

that important matters should be made available to the membership previous to the meeting so that they can act from personal knowledge on the subject.

It was voted that strenuous prosecution of all measures designed to eliminate the hazards of bubonic plague be urged on state and national health officers; and that the proposal of the Oregon State Board of Health that the legislature appropriate three thousand dollars to supplement the six thousand dollars offered by the United States Public Health Service be endorsed, these sums to be used for the purpose of putting into effect a program of rodent control in Eastern Oregon. It was voted that a resolution be sent to Governor Charles H. Martin, embodying the views of the Council.

Attention of the members is called to the new radio program sponsored by the A. M. A. over the National Broadcasting Company through KGW. These programs are in the form of short playlets, each covering some phase of public health work and disease prevention. The Council listened to a report of a special committee for the establishment of first-aid stations on the highways and voted that further study of the implications of the proposal be made by a committee which was appointed. It was voted that a survey of all existing health education programs and medical services in the schools and colleges of the state be made by the Committee on Public Education.

The Executive Secretary, Mr. Clyde C. Foley, with the authorization of the Council, attended the Annual Conference of Secretaries of constituent state medical associations and the Association of Editors of State Journals in Chicago, November 15-16. Many matters of importance were considered. Of special interest was the administration of the national security laws, and physicians were urged to see to it that the administration of the act was not placed in the hands of those who were not capable of carrying out its provisions properly.

Life memberships were voted to Drs. A. M. Webster, E. E. Cable, Portland, and to Dr. F. M. Day, Eugene.

The matter of the deduction of automobile expenses for income tax purposes was discussed and the Executive Secretary was instructed to forward to the Legal Department of the A. M. A. data covering such a case for test purposes.

The subject, "Resolved, that the several states should enact legislation providing for a system of complete medical service available to all citizens at state expense," has been adopted by a large number of high schools and colleges for their subject of debate for the present year. The headquarters of our Society has available literature, prepared by the Bureau of Medical Economics of the A. M. A., which states the viewpoint of organized medicine on this question. It may also be obtained through the State Library at Salem. Physicians are urged to see that high school students in their local communities who are participants in these debates obtain copies of the material on the negative side of the question.

A. G. BETTMAN, *Editor*.

WOMAN'S AUXILIARY

The Woman's Auxiliary to Oregon State Medical Society held a Board Meeting on October 22, 1935, at Campbell Court Hotel in Portland. Mrs. W. F. Patrick, president, announced the appointment of three special committees: Mrs. C. E. Hunt, Eugene; Mrs. Charles T. Sweeney, Medford, and Mrs. Vernon Douglas, Salem, on the Cancer Control Committee; Mrs. John G. Abele and Mrs. Wilson Johnston, both of Portland, on the McLoughlin Home Committee; Mrs. Wilson Johnston was also named in charge of the Marcus Whitman Centennial Celebration which is to be held in September, 1936.

Mrs. Patrick announced the appointment of Mrs. Joseph A. Pettit as chairman of the Public Relations Committee. A new committee was announced by the President, the Properties and Supply Committee. Mrs. F. Bertram Zener was named chairman and requests for supplies should be addressed to her at 2338 S.W. Madison Street, Portland.

Mrs. Arthur C. Jones and Mrs. F. Bertram Zener were appointed to assist Mrs. Raymond T. Kaupp on the Press and Publicity Committee.

At this meeting plans for the program for the coming year were outlined and the chairman of each committee reported the work she hoped to accomplish. These reports will be given in the November issue of our *News Letter*.

Attention is called to the new series of health programs which is being presented by the A. M. A. with the cooperation of the National Broadcasting Company network. This educational feature is being broadcast each Tuesday at 2:00 p.m. Pacific Standard time over KGW. Other western stations from which this program can be heard are KDYL, Salt Lake City; KPO, San Francisco; KFI, Los Angeles; KOA, Denver and KHQ, Spokane. Announcements of subjects and speakers on these broadcasts will be printed weekly in the *Journal A. M. A.* under the heading, "Association News." "Medical Emergencies and How They are Met," is the general theme for these one-half hour programs which are dramatized in a unique manner with incidental music under the title of "Your Health." Publicize these programs as widely as possible by announcing them in your various club activities and by telling the hour of the programs to all with whom you come in contact.

MRS. F. BERTRAM ZENER,

Cochairman, Press and Publicity Committee.

WASHINGTON

A MESSAGE TO THE WASHINGTON PROFESSION

Yakima, Wash., Nov. 22, 1935.

Possibly the most vital subject to place before the members of the Washington State Medical Association today is the program now being outlined and operated by the Public Relations Committee. It is vital to all of us because this committee is the connecting link between our association and the public. Through it we must contact the laity along medical and kindred lines. We are able here to offset in part some of the attacks on organized medicine. Through this committee it will be possible to interest and educate our lay friends in medicine as a science, and to disillusion them as to the inferred insinuations that we belong to a trust or a monopoly.

Frank J. Clancy of Seattle, ably assisted by Miss Helen

Wilcox, the Public Health League secretary, has inaugurated a program, which if carried to completion during the next twelve months, will do more to mold public opinion in favor of organized medicine than any other program ever sponsored by our State Association. If any of you have any suggestions to offer, or if you wish any information regarding this committee, they will be more than glad to cooperate with you.

But, fellow members, the committee cannot exist and operate on thin air and promises. They need something in the form of the exchange of the realm. The State Association trustees delegated the raising of \$25,000 to a committee consisting of Drs. Clancy of Seattle, Morrison of Bellingham, Sprowl of Spokane and your State President. During the past three weeks we have visited the county socie-

ties of Spokane, Pierce, King, Snohomish, Walla Walla and Yakima. The response of the men contacted has been highly pleasing to our committee. The individual members have responded far above our expectations. They apparently are realizing the imminent dangers confronting medicine in these hectic days of uncertainty. It is our intention to visit every county society and place before you the need of assistance to insure success to the Public Relations Committee.

Our goal in this campaign is \$25,000, one-third of which is to be deposited in the treasury of the Washington State Medical Association. One-third will go to the Public Relations Committee and one-third to the Public Health League. This money is to be spent under the supervision of the State Association trustees.

The Public Relations Committee has in mind several methods of contact with the public during the coming year. At present it is most busy contacting the high schools of the state, and furnishing them with information in their debate question of social versus organized medicine. If any of your local schools are in need of debate material on this question, I urge you to write Helen Wilcox, in the Stimson Building, Seattle, and all possible information will be forthcoming.

To the county societies that we have already visited we extend our most grateful thanks for your contributions and cooperation. And to those societies not yet visited, we have only to say: "We'll be seein' you," so have your check-book handy.

D. F. BICE.,

President Washington State Medical Association.

WOMAN'S AUXILIARY

Wenatchee, Wash., Nov. 25, 1935.

Spokane County Woman's Auxiliary held a well attended and beautifully appointed membership tea November 8 at the home of Mrs. Robert Hamblen. Dr. R. M. Stolzheize, formerly psychiatrist at the state institution at Medical Lake, gave an interesting talk. All the members of the auxiliary feel deeply the death of Mrs. J. Glen Harbison, a charter member of the organization, who was actively associated with it since its beginning. Her presence both as a member and a gracious personality will be greatly missed.

Mrs. G. Francis Hilton, president of Chelan County Auxiliary, is seriously ill. During her absence Mrs. Lecil Miller, vice-president, is leading the group. Mesdames R. T. Congden and R. S. Mitchell accompanied their husbands to the Congress of the American College of Surgeons in San Francisco.

Press and Publicity Chairmen of each county should get their news items to the State Chairman immediately after each meeting. Let us have a statewide report in January's NORTHWEST MEDICINE which goes to press the first of each month.

MRS. GENEVIEVE N. HOXSEY,
Press and Publicity Committee.



BOOK REVIEWS

THE STOMACH AND DUODENUM. By George B. Eusterman, M.D., F.A.C.P., Head of Section in Division of Medicine, The Mayo Clinic, etc.; and Donald C. Balfour, M.B., M.D. (Tor.), LL.D., F.A.C.S., F.R.C.S., Head of Section in Division of Surgery, The Mayo Clinic, etc.; and Members of the Staff, The Mayo Clinic and The Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota. 958 pages with 436 illustrations. Cloth, \$10.00 net. Philadelphia and London: W. B. Saunders Company, 1935.

For a long while the practitioner and the specialist, with a high degree of expectancy, have been waiting for this excellent volume. The authors and their cowriters are experts with invaluable experience in the experimental, the laboratory and the clinical fields of gastroenterology. They have drawn from the case histories and the follow-up records covering a period of more than seventy years. Without resorting to the didactic or the academic presentations, they have confined their discussions in a composite way to such phases that have more or less direct clinical application.

Statistical data have been included only enough to bring out certain pertinent points. Bibliographic references have been recorded to serve for practical purposes only. The first chapter portrays delightfully the history of diseases of the stomach and duodenum with reference also to their etiology. In it is given an account of those earlier workers, of famed name who paved the way the latter half of the previous century and the first part of the present to the firm foundation on which our popular knowledge lies.

In an unique manner Alvarez tersely develops the discussion of applied physiology of the stomach and duodenum. Mann compactly writes on the experimentally produced chronic gastric and duodenal ulcer. MacCarty relates his views on the surgical pathology, especially the frequency in which early secondary cytoplastic changes occur in resected gastric ulcers. Robertson lends the wealth of his experience to the study of the stomach and duodenum at necropsy.

An unusually fine array of charts and drawings is used in multiple chapters written to depict in a comprehensive manner the symptom-complex and the diagnostic features. Very clearly the complications of and extraordinary conditions associated with peptic ulcers and gastric neoplasms are portrayed. Medical and surgical treatment are dealt with extensively. Follow-up expectancies are freely discussed. All in all the book is the most illuminating revelation on the complex subject of the stomach and duodenum we have at our disposal today, and it should be within easy reach of every general practitioner and gastroenterologist.

BOWERS.

THE ANATOMY OF THE NERVOUS SYSTEM. By Stephen Walter Ranson, M.D., Ph.D., Professor of Neurology and Director of the Neurological Institute, Northwestern University, Medical School, Chicago. Fifth Edition, Revised. 501 pages with 381 illustrations, some of them in colors. Philadelphia and London: W. B. Saunders Company, 1935. Cloth, \$6.50 net.

In the author's preface he makes the following statement: "In pages which follow, the anatomy of the nervous system has been presented from the dynamic rather than

the static point of view. Emphasis has been laid on the developmental and functional significance of structure. The student is led to think of the nervous system in its relation to the rest of the living organisms. Structural details which, when considered by themselves are dull and tiresome, become interesting when their functional significance is made obvious." The above statements express very concisely the most important feature of this very excellent textbook on the anatomy of the nervous system.

This usually dry and exceedingly difficult subject for most individuals becomes alive, vital and tremendously interesting. Fundamentals are stressed which are important in the student's concept of neurology, little time being spent on dry details. The first few chapters which have to do with the embryology and the histology are of importance to the student, but probably are not of much interest to the clinician. Commencing with chapter V, however, the entire aspect of the book changes, and it moves very rapidly and interestingly to definite and easily understood conclusions. Throughout the remaining chapters brief but succinct paragraphs relate the functional significance of the anatomic details which the author has covered.

Perhaps the autonomic nervous system could have been dealt with at greater length because of its great importance in regard to visceral functions. What has been covered, however, is excellently done and contains the latest concepts of the functional significance of the autonomic nerves. It has never before been the reviewer's privilege to read a textbook on the anatomy of the nervous system which has been so interesting and has so clearly set forth the developmental and functional significance of the nervous system. He feels this book should be in the personal library of every physician for his frequent perusal when he meets with conditions having to do with the nervous system which are not clear to him. An occasional reading and rereading of a chapter could not help broadening his knowledge of medicine.

FLOTHOW.

MODERN HOME MEDICAL ADVISER. Your health and How to Preserve It. Edited by Morris Fishbein, M.D. With Many Linecut and Half-tone Illustrations. 905 pp. \$9.50. Doubleday, Doran & Company, Inc., Garden City, New York, 1935.

It is a valuable asset for any family to possess a book containing dependable and accurate advice on a great variety of family problems. This volume offers information that every intelligent person ought to know about scientific medicine and hygiene. It is planned to answer questions concerning illnesses that may develop in the family and as an adequate guide to hygiene and first aid. The editor is assisted by twenty-three collaborators, most of whom are professors in leading medical colleges. The author writes five chapters with introductions to a majority of the others. In his inimitable style he offers attractive, interesting discussions on choice of physician, the family medicine chest, infectious diseases and prevention and treatment of transmissible and respiratory diseases, beside other topics. There is an abundance of practical suggestions revealing invaluable information for any family. Sex hygiene, by Rice, discusses many aspects of sexual matters which the parent wishes but hesitates to impart to the children, also it in-

cludes suggestions on family sexual affairs. The proper treatment of diabetes refers largely to the patient and members of his family. No one can discuss this matter more convincingly than Joslin, whose chapter contains suggestions and truths that will provide great assistance in managing this condition. There are chapters on diseases of the skin, venereal diseases, posture, the foot, and many other subjects, the consideration of which are constantly presented to parents. While this book is not intended for self-medication, it offers information which needs supplementing by the advice of the family physician.

YEAR BOOK OF RADIOLOGY. Diagnosis. Edited by Charles A. Waters, M.D. Associate Roentgenologist, Johns Hopkins University, etc. Associate Editor, Whitmer B. Firor, M.D. Assistant in Roentgenology, Johns Hopkins Hospital. Therapeutics. Edited by Ira I. Kaplan, M.D. Director, Division of Cancer, Department of Hospitals, City of New York. 580 pp. \$4.50. The Year Book Publishers, Inc. Chicago, 1935.

This volume is edited in two main divisions. That on diagnosis is well illustrated and the reviews are quite complete. A complete bibliography permits reference to any article for more detailed study. An entirely new subject is the roentgen study of nerves and their pathologic change in injury and tumor. Other interesting features deal with the diagnosis of inflammatory foci in bone tissue by means of thorotrast; bone free radiography of the eye; advances in breast radiography and several relatively new procedures such as polisography, tomography and kymography which intrigue the interest of the reader.

The division of therapy devotes separate chapters to radiation biology and physics as well as general considerations in radiation therapy and the chemistry of cancer. Twelve chapters are devoted to a review of radiation as applicable to diseases of the various systems, both benign and malignant. The book is legibly printed on nonglossy paper and is recommended for reading and reference by the general practitioner as well as the radiologist. NICHOLS.

LABORATORY DIAGNOSIS, With Clinical Applications for Practitioners and Students. By Edwin E. Osgood, M.A., M.D. Assistant Professor of Medicine and Biochemistry, University of Oregon. School of Medicine. Second Edition. With Twenty-seven Figures in the Text and Ten Colored Plates. 585 pp. \$6.00. P. Blakiston's Son & Co., Inc. Philadelphia, 1935.

This second edition preserves the original plan of the first, of dividing the book into two parts. The first considers clinical disorders, tests which would aid in diagnosis and the principle of the tests. There is an excellent chart of classification and differential diagnosis of Bright's disease. There is a complete, valuable and practicable chapter on the disorders of carbohydrate, protein and fat metabolism with a good summary of acid-base equilibrium. The author is well recognized for his work in hematology, under which seven colored plates of normal and abnormal blood cells are reproduced. Considerable new original work has been added to this chapter. The second part gives in detail the laboratory methods which the author has personally tested and valued as practical and safe for the clinician and laboratory. The book can be highly recommended to clinicians, laboratories or anyone interested in clinical or laboratory diagnosis. BALLE.

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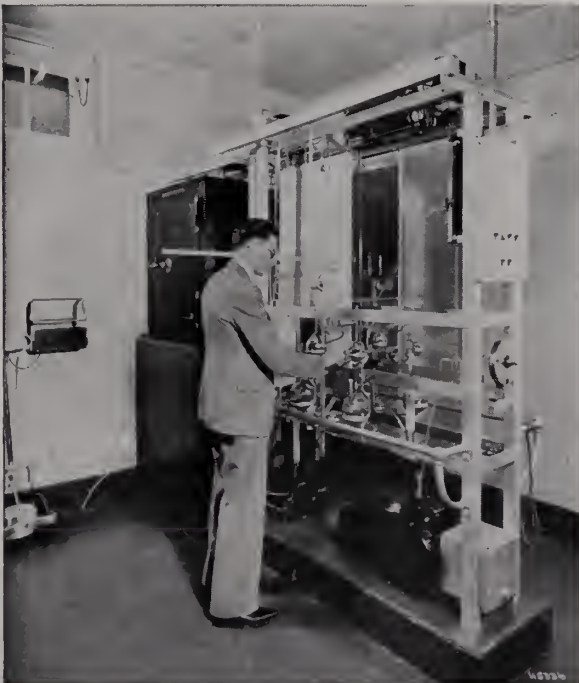
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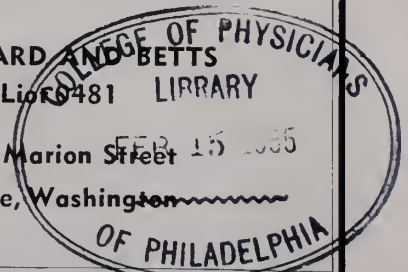
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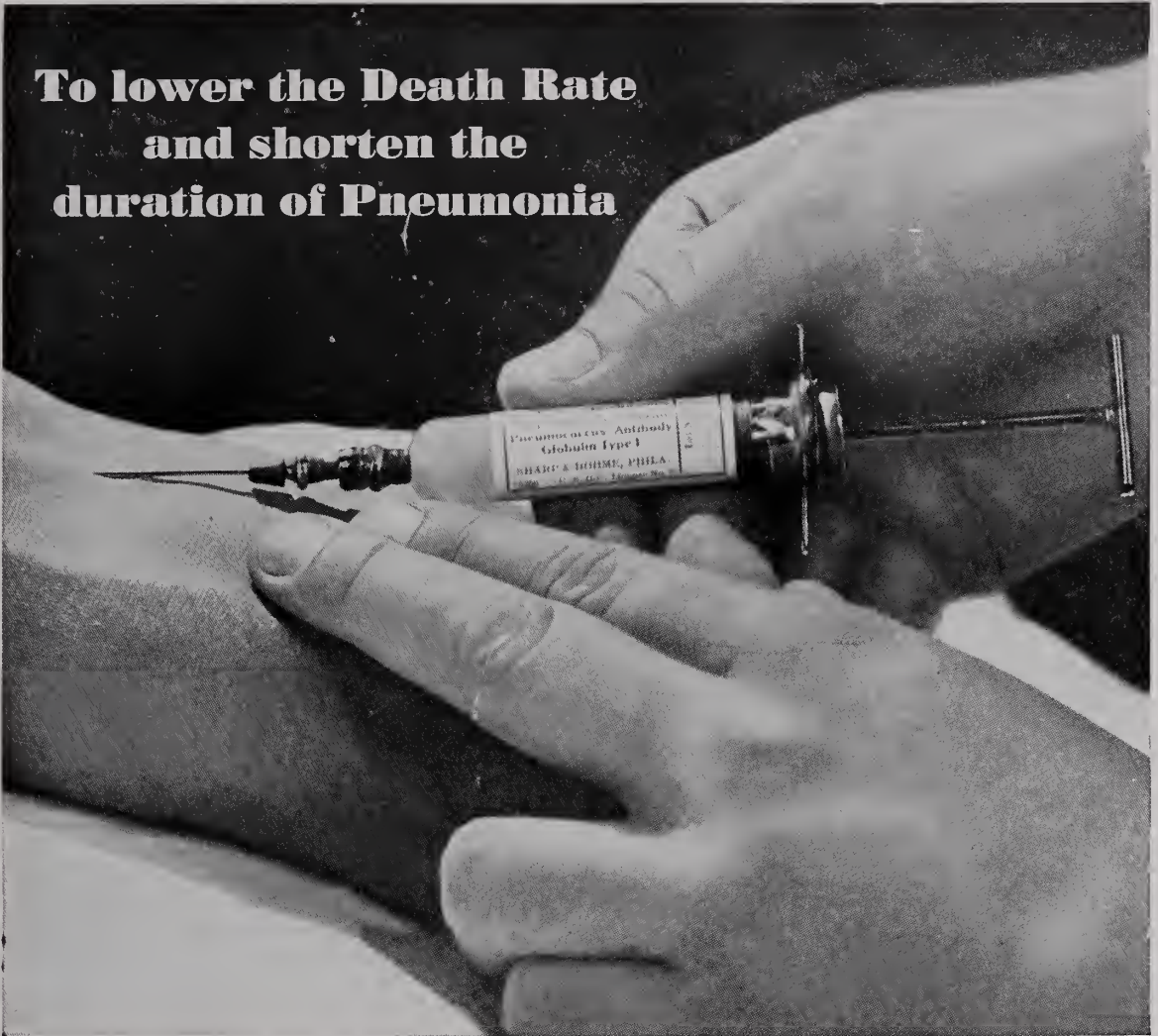
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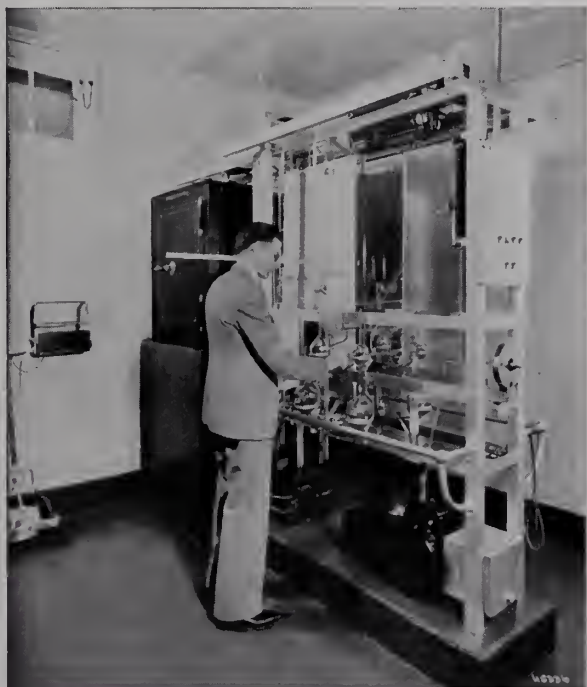
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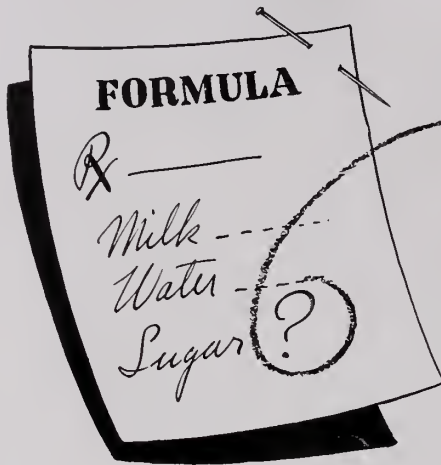
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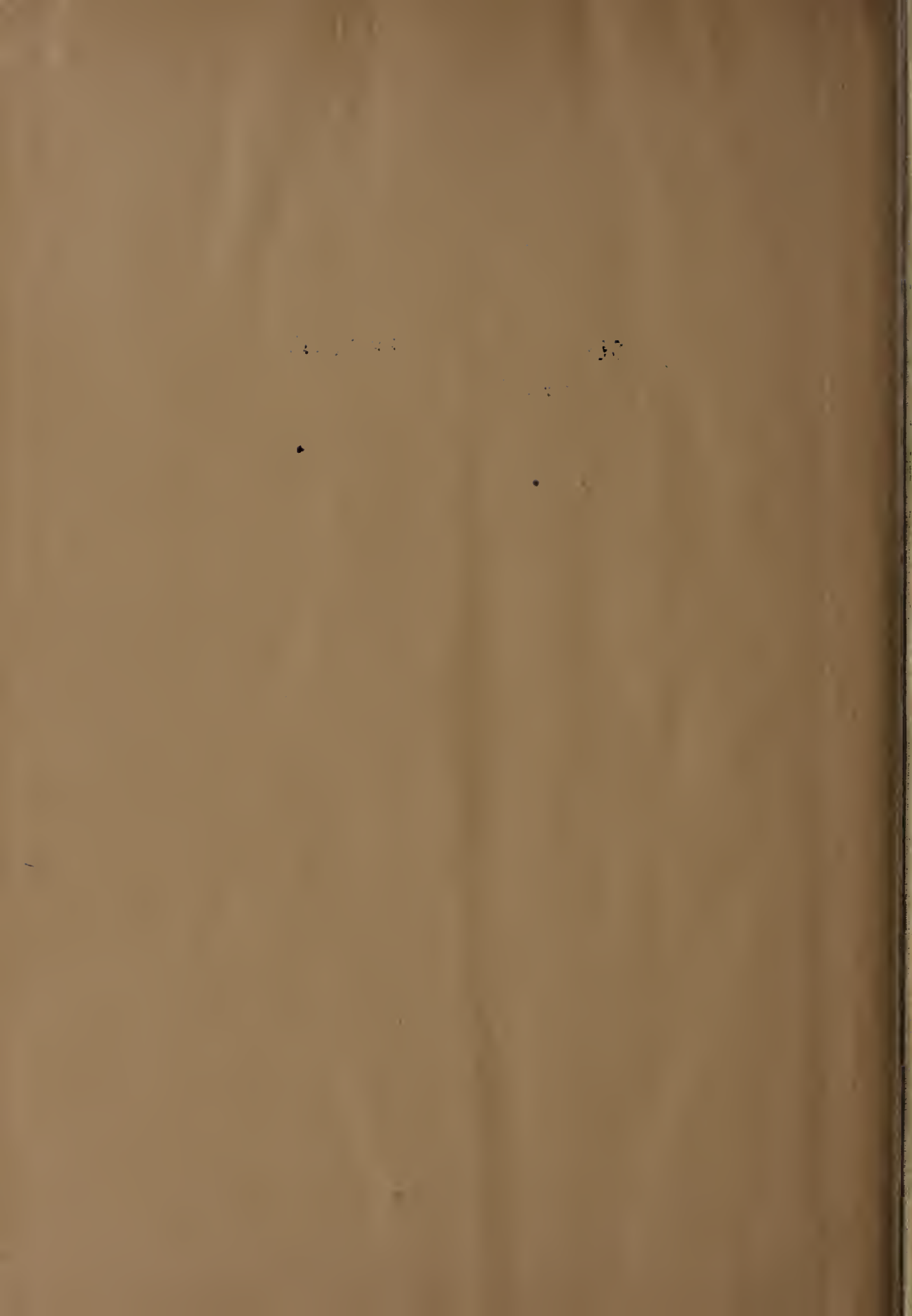
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